3 Sheets—Sheet 1.

C. F. SEARCH.

Clevis.

No. 208,042. Patented Sept. 17, 1878.

Fig. 1

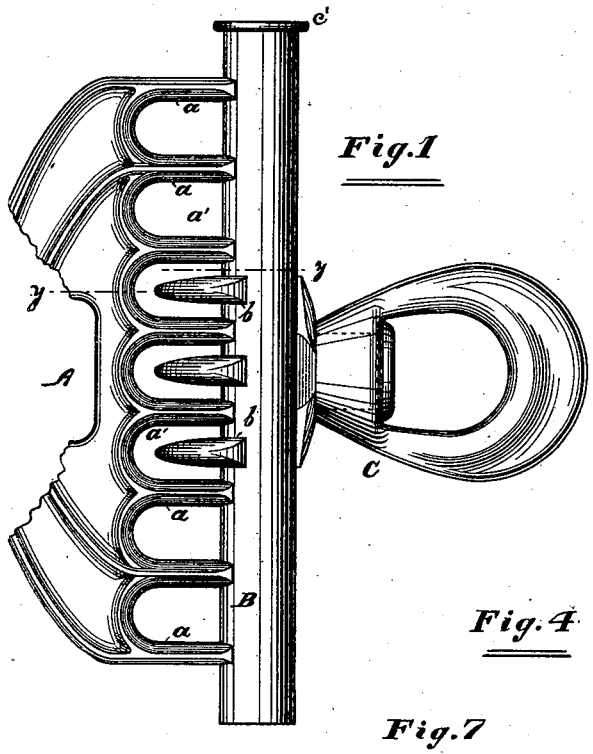

Fig. 3

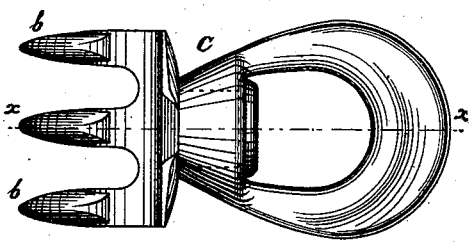

Fig. 4

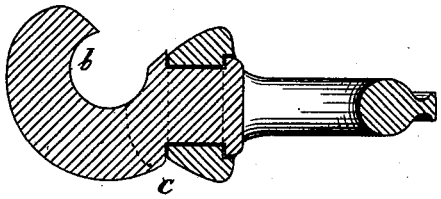

Fig. 7

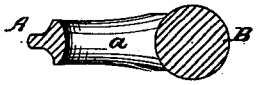

Fig. 2

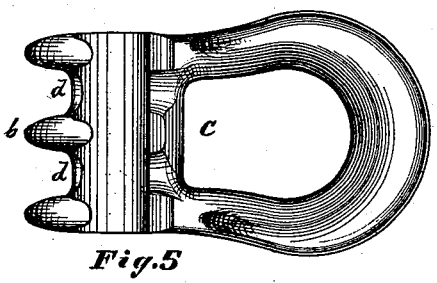

Fig. 5

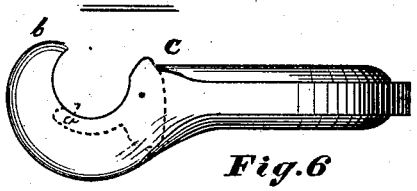

Fig. 6

Attest:

O. J. Mackenzie

O. L. Fox

INVENTOR:

Carpus F. Search

By Coyne & Co. his

Attorneys

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C. F. SEARCH.

Clevis.

No. 208,042. Patented Sept. 17, 1878.

Fig. 8

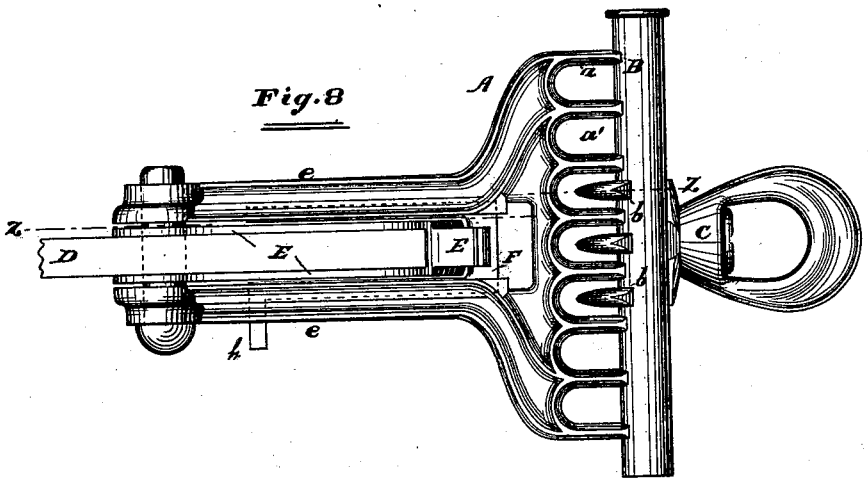


Fig. 9

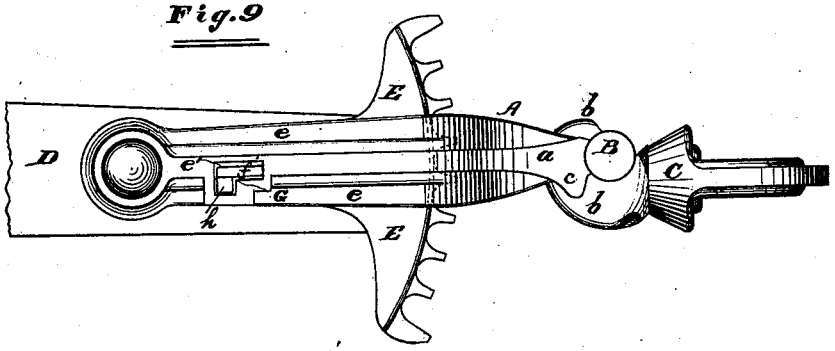


Fig. 10

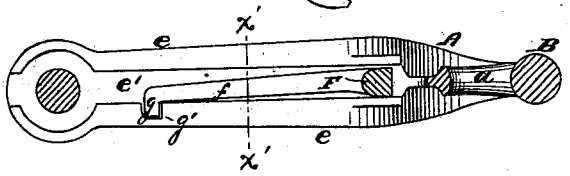


Fig. 11

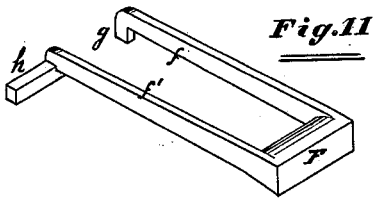


Fig. 12

Attest:

D. J. Mackellar

O. L. Fox

INVENTOR:

Casper F. Search

By Coyne & Co. his

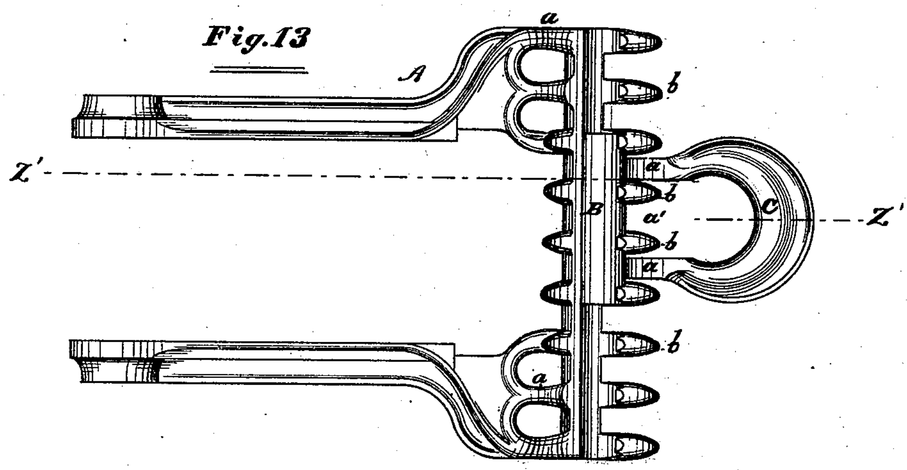
Attorneys.

3 Sheets—Sheet 3.

C. F. SEARCH.
Clevis.

No. 208,042. Patented Sept. 17, 1878.

Fig. 13



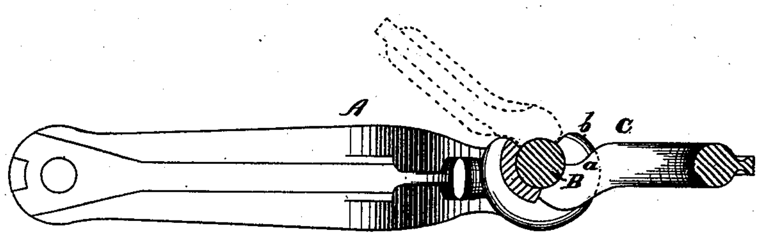


Fig. 14

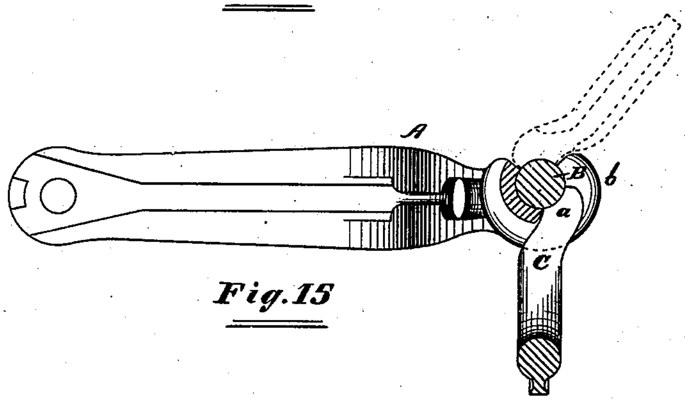


Fig. 15

Attest:

J. J. MacKellar
O. L. Fox

INVENTOR:

Casper F. Search

By Coyne & Co. his

Attorneys.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CASPER F. SEARCH, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHICAGO MALLEABLE IRON COMPANY.

IMPROVEMENT IN CLEVISES.

Specification forming part of Letters Patent No. **208,042**, dated September 17, 1878; application filed July 2, 1878.

To all whom it may concern:

Be it known that I, CASPER F. SEARCH, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Clevises, of which the following, in connection with the accompanying drawings, is a specification.

Figure 1, Sheet 1, is a top or plan view of a clevis, cross-head, and shackle embodying the principal feature of my invention; Fig. 2, Sheet 1, an end view of the same; Fig. 3, Sheet 1, a top view of the shackle detached; Fig. 4, Sheet 1, a section in the plane of the line *x x;* Fig. 5, Sheet 1, a top view of the shackle, showing a modification in its construction; Fig. 6, Sheet 1, a side view of the shackle represented in Fig. 5; Fig. 7, Sheet 1, a section in the plane of the line *y y;* Fig. 8, Sheet 2, a top or plan of the clevis and the means employed for adjusting the cross-head; Fig. 9, Sheet 2, a side elevation of the same; Fig. 10, Sheet 2, a section in the plane of the line *z z;* Fig. 11, Sheet 2, a perspective of the adjusting-bolt; Fig. 12, Sheet 2, a section in the plane of the line *x' x';* Fig. 13, Sheet 3, a top or plan view representing a modification in the construction shown in Fig 1; and Figs. 14 and 15, Sheet 3, are side elevations of the clevis constructed as shown in Fig. 13.

Like letters of reference indicate like parts.

My invention relates chiefly to the means employed to connect the shackle adjustably to the cross-head. It also relates to the means used for rendering the shackle eye or loop pivotal on the rear part of the shackle, and to the devices whereby the cross-head is made adjustable with relation to the beam-plates.

In the drawing, A represents the cross-head of a clevis. The forward part of this cross-head consists of a bar, B, preferably cylindrical in form, and connected to the rear or forked part of the cross-head by means of arms or webs *a a*, but not necessarily by means of all of the said arms, the object being to make behind the said bar a number of eyes or openings, *a' a'*, either wholly or partly inclosed by arms or projections extending either from the bar B to or toward the rear part of the clevis, or vice versa, as will hereinafter more fully appear. C is the shackle. The rear end of this shackle consists of claws *b b*, formed to more than half inclose the bar B, and sufficiently apart from each other to receive between them the arms *a a*.

To couple the shackle to the cross-head, I place the former at one end of the bar B, turning the shackle until the arms *a a* do not interfere with the claws *b b* or prevent the shackle from being pushed endwise upon the bar B.

The position in which the shackle should be held in order to be applied to the cross-head is clearly indicated in Fig. 2. The shackle may then be carried to any part of the bar B and released, it being understood that the claws *b b* are left in such a position on the bar as to enter the openings *a' a'* when the shackle is turned or thrown forward, as represented by the broken lines in Fig. 2.

It is now obvious that the shackle can neither fall from nor accidentally be moved laterally on the bar B; hence the draft will always be from the point or position at or in which the shackle is arranged. It is also obvious that this point may be shifted by raising the shackle to the position indicated by the full lines in Fig. 2, and then moving it to some other position and releasing it, as already described. Thus the point of draft may be varied so as to cause the plow to run either more or less toward the land when the cross-head is horizontally arranged, or either deep or shallow when it is vertically arranged. In the latter case the shackle will always stand horizontally or be held up to the point of draft.

I have now described the chief features of construction relating to this part of my invention; but there are some minor features of construction which I deem desirable in connection therewith, for the purposes hereinafter set forth, but to which I do not intend to restrict myself. For example, the shackle should always be placed on a horizontal bar, B, in such a manner that the ends of the claws *b b* will be upward. To insure this arrangement, I make on one of the outer arms, *a a*, a small stop or projection, *c*, which will strike the shackle when the loop or eye thereof is held downward in the attempt to couple the shackle and cross-head in that manner, and the act of coupling will thus be prevented until the posi-

tion of the shackle is reversed. The same means may be employed to prevent the shackle from being wrongfully placed on the other end of the bar B, or else that end may be enlarged for the same purpose, as shown at *c'*.

If the shackle, when coupled to a horizontal cross-head, should be so placed thereon that the ends of the claws *b b* would be downward, the loop or eye might fall downward or swing rearward sufficiently to carry the ends of the claws above the arms *a a*, and if the shackle should then be moved laterally by accident the point of draft would be unintentionally changed. Besides, if the ends of the claws should stand directly over the arms *a a*, the team, on starting up, would probably bend or break the coupling parts of the clevis, owing to the strain then thrown upon the claws on account of the leverage produced by the position of the shackle and the resistance offered by the arms *a a* to its movement to a horizontal position.

It is also desirable that the whiffletrees or eveners should remain horizontal when the plow is tilted laterally. This result I accomplish by making the eye or loop of the shackle in a separate piece from the remaining portion, and by connecting these parts by means of a swivel-joint, as represented in Figs. 1, 2, 3, and 4. When the accomplishment of this object is not deemed essential, the shackle may be made in one piece, as shown in Figs. 5 and 6.

It is desirable, also, that the shackle should not be allowed to fall below a horizontal plane when coupled to a horizontal cross-head, and that it should have some vertical play. To support the shackle horizontally and admit of this vertical play, I carry the webs between the claws far enough toward the ends thereof to be in contact with the lower sides of the arms *a a* when the shackle is arranged horizontally, as shown at *d d*, Figs. 5 and 6.

It will be perceived from the foregoing description and by reference to the drawings, especially to Sheet 3, that it is immaterial whether the claws be upon the shackle or upon the cross-head, provided that, in the latter case, the equivalent of the bar B be placed upon the shackle, as shown in Figs. 13, 14, and 15, the eye or loop of the shackle then serving the purpose of the openings *a' a'*. In other words, the construction represented on Sheet 3 is the result of a mere transposition of parts, and is therefore within the scope of my invention.

I now pass to an entirely distinct feature of my invention—the means I employ for rendering the cross-head adjustable. D represents a plow-beam. To apply this part of my invention to practice, the rear part of the cross-head is forked to receive the forward end of the plow-beam, and parallel arms *e e* are thus formed, the rear ends of which are pivoted to the beam D, as represented in Figs. 8 and 9. On the interior faces of the arms *e e* are longitudinal grooves *e' e'*. E is a beam-plate, rigidly attached to the beam D, and having a notched or serrated front edge, lying preferably in the arc of a circle. F is a cross bar or bolt adapted to slide in the grooves *e' e'*, and provided with rearwardly-extending arms *f f'*, arranged in the said grooves and adapted to move freely therein. The rear end of the arm *f* is bent downward slightly, as shown at *g*, and *g'* is a depression to receive the part *g*. Extending laterally from the rear end of the arm *f'* is the extension or handle *h*. G is a rectangular slot, through which the part *h* projects sufficiently to be grasped with facility. In order to adjust the cross-head, it should be grasped and held, and the part or handle *h* moved forward in the slot G. This forward movement of the part *h* carries the cross-bar F from its engagement with the forward end of the plate E. The cross-head may be moved then to any position desired, and there locked by drawing back the handle *h*.

All the features of my invention may be applied to clevises adapted for either iron or wood plow-beams. Enough arms, spurs, or webs *a a* should be employed to render the extent of the adjustment sufficient for all practical purposes. The eye-rim of the shackle may meet a coupling-bar, B, at only one point instead of at two or more, and in either case the connecting portions serve the purposes of the parts *a a*, or prevent the accidental lateral movement of the shackle. The number of claws is also immaterial, so long as the extent of the adjustment is sufficient, and only one claw need be used on the shackle if sufficient strength may be so obtained without making the minimum of adjustment too small. The rear part of the shackle may with propriety be termed a "claw," without regard to the number of claw-projections thereon.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a plow-clevis having a cross-head, a draft-shackle adjustably coupled to said cross-head by one or more hooks or claws, and adapted to be turned in one direction and adjusted from side to side, and then turned in the reverse direction and locked in working position, substantially as shown and described.

2. The combination, in a clevis, of the coupling-bar B, the claws *b b*, and the claw-receiving openings *a' a'*, all arranged, substantially as specified, with relation to each other and to the cross-head and the shackle, for the purpose of thereby rendering the shackle adjustable between the forward ends or corners of the cross-head.

3. The combination, in a clevis, of the cross-head A, having in its forward end the openings *a' a'*, and a draft-shackle having on its rear end one or more claws, *b b*, the latter being sufficiently long to more than half inclose the bar extending in front of the said openings, and short enough to admit of the

shackle being adjusted laterally on the said bar, substantially as and for the purposes specified.

4. The combination of the swivel-jointed draft-shackle B, having on its rear end the claws *b b*, with the cross-head A of a clevis, the said cross-head having therein the openings *a' a'*, substantially as and for the purposes specified.

5. The combination of the fixed beam-plate E, spurred on its forward end, and the pivoted, grooved, and slotted cross-head, carrying in its grooves the forked locking device F, the latter having thereon the arm or handle *h*, entering the locking-slot G, substantially as and for the purposes specified.

CASPER F. SEARCH.

Witnesses:
F. F. WARREN,
JAMES H. COYNE.