

P. A. MYERS.
DOUBLE HARPOON HAY FORK.
APPLICATION FILED DEC. 14, 1908.

927,579.

Patented July 13, 1909.

2 SHEETS—SHEET 1.

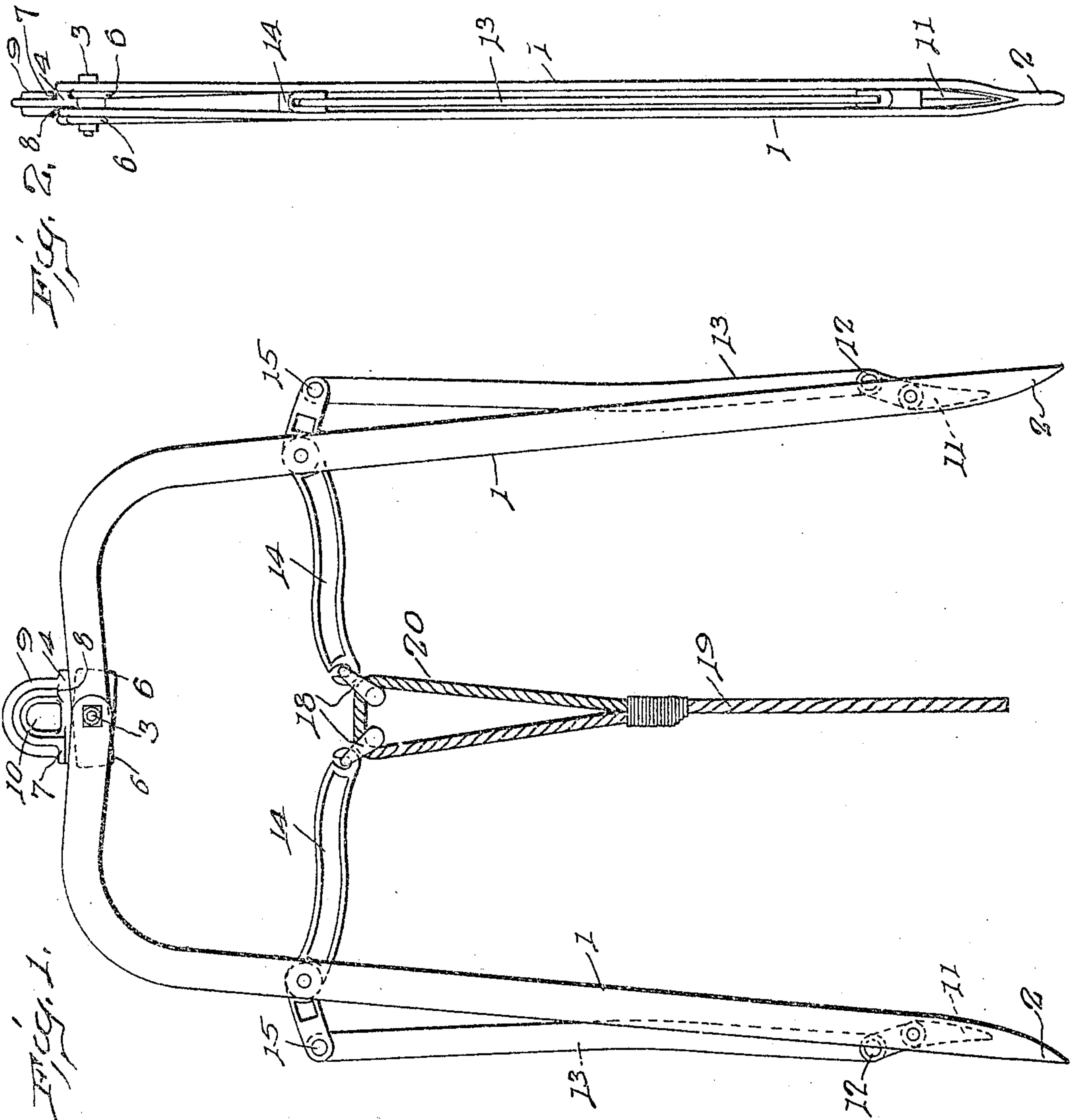


Fig. 1.

Fig. 2.

Inventor

Philip A. Myers,

Witnesses

G. Howard Walmsley,
Edward T. Reed.

By *H. A. Pauline*

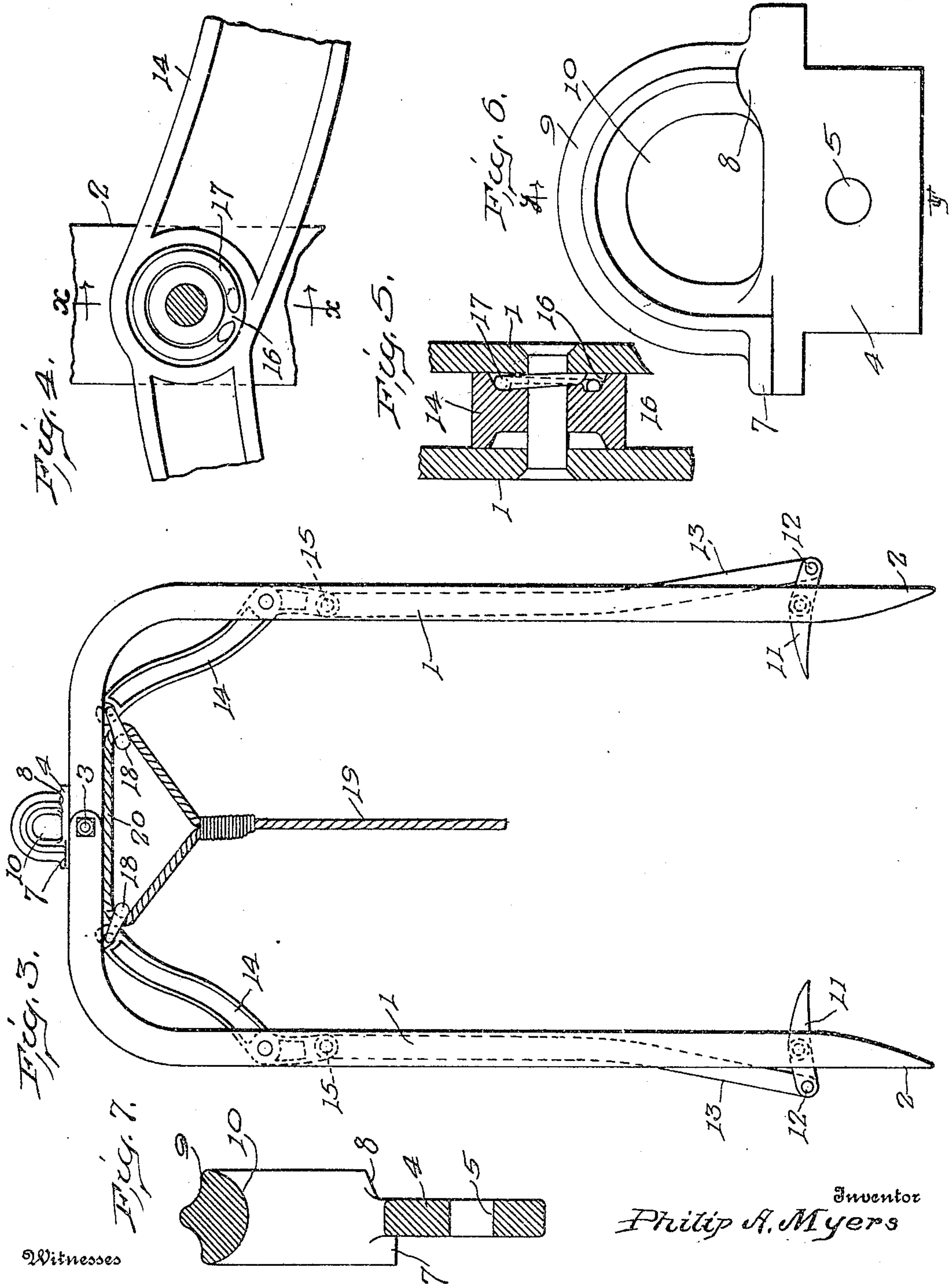
Attorney

P. A. MYERS.
DOUBLE HARPOON HAY FORK.
APPLICATION FILED DEC. 14, 1908.

927,579.

Patented July 13, 1909.

2 SHEETS—SHEET 2.



Witnesses

G. Howard Walmsley,
Edward Reed.

Inventor
Philip A. Myers

By *H. A. Goodwin*
Attorney

UNITED STATES PATENT OFFICE.

PHILIP A. MYERS, OF ASHLAND, OHIO, ASSIGNOR TO F. E. MYERS AND BROTHER, OF ASHLAND, OHIO, A COPARTNERSHIP.

DOUBLE-HARPOON HAY-FORK.

No. 927,579.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed December 14, 1908. Serial No. 467,388.

To all whom it may concern:

Be it known that I, PHILIP A. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Double-Harpoon Hay-Forks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to double harpoon hay forks, and more particularly to that class of forks known as grappling harpoon forks, in which the tines tend to move toward each other under the weight of the load.

The object of the invention is to provide a fork of this character in which the cross bar will be eliminated, thereby simplifying the construction and materially increasing the capacity of the fork.

To this end it is also an object of the invention to provide the fork with a suitable stop to limit the movement of the tines relatively one to the other.

A further object of the invention is to provide means for retaining the load supporting barbs in their adjusted positions; to provide improved means for connecting the tripping rope to these levers, whereby a downward pull on the tripping rope from any angle on either side of the fork will operate both levers to withdraw the barbs and release the load; to render the fork partially automatic in the setting operation; and also to render the fork as a whole of a very simple, durable construction.

With these objects in view my invention consists in certain novel features and in certain combinations and arrangements of parts hereinafter to be described, and then more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a fork embodying my invention, showing the barbs in their folded position and the tines of the fork slightly diverging; Fig. 2 is a side elevation of the fork in the position shown in Fig. 1; Fig. 3 is a front elevation of the fork with the barbs extended and the tines in substantially parallel positions; Fig. 4 is a detail view of the barb-actuating levers and their friction members; Fig. 5 is a detail, sectional view, taken on the line $x x$ of Fig. 4; Fig. 6 is a detail view of the stop block; and Fig. 7 is

a sectional view, taken on the line $y y$ of Fig. 6.

In these drawings I have illustrated the preferred form of my invention and have shown the fork as comprising two tines 1, having their lower ends beveled outwardly to form points 2 and having their upper ends bent inwardly and pivotally connected one to the other by means of a suitable pivot pin or bolt 3. In the preferred construction of the fork each of the tines 1 is composed of two members arranged parallel one with the other and having their lower ends brought together and welded to form a common point at 2 for both members of the tine. The two members of each tine are spaced substantially the same distance apart and the ends of the members of the two tines overlap, thus causing one member of each tine to lie between the two members of the other tine. Suitable means are provided for retaining the tines in their positions and this means is here shown as a spacing block 4 arranged between the innermost members of the two tines and having an aperture 5 to permit the passage of the bolt 3. Suitable means are also provided for limiting the movement of the tines relatively one to the other, this means being secured to the fork near the point of pivotal connection of the tines, and, in the present instance, comprises the spacing block 4 which is provided with suitable stops and serves as a stop block, as well as a spacing block. To this end, one of the members of each tine is preferably extended some distance beyond the end of the other member, as shown at 6, this extended member being preferably the innermost member or the member lying adjacent to the stop block 4. The stop block 4 is provided on each side with a stop or lug 7, each stop being arranged near that end of the stop block lying on the side of the pivotal center of the tine opposite the body portion thereof and in a position such as to engage the extended end, portion of the adjacent member of the tine and thus limit the inward movement of the tine. The stop block 4 is also provided on each side thereof with a stop or shoulder 8 located near the end of the block opposite the lug 7 and on that side of the pivotal center of the tine adjacent to the body portion thereof and in such a position as to engage the edge of the elongated mem-

ber of the tine as the tine is moved outwardly or away from the other tine and thus limit the outward movement thereof. The stop block 4 is preferably provided with an upwardly extending portion 9 having an opening 10 therein, thus providing means for connecting the fork to the hoisting rope.

A barb 11 is pivotally mounted between the two members of each tine near the lower end thereof and is adapted to be moved about its pivotal center into a position parallel with the members forming the tine. The barb is preferably so shaped that when folded parallel with the members of the tine it will lie entirely within the same and its edges will be flush with, or within, the members of the tine, thus permitting the tine to freely enter the hay. The outer end of the barb 11 extends some distance beyond its pivotal center and is pivotally connected at 12 to a bar or link 13 extending upwardly along the tine 1 and pivotally connected at its upper end to one end of a lever 14, as shown at 15. This lever is pivotally mounted between the two members of the tine near the upper end thereof and that end thereof opposite the end to which the link 13 is connected extends inwardly and is adapted to be actuated to move the lever about its pivotal center and thus operate the barb to move the same either into its operative position or into its inoperative position. The shape of the link 13 and of the lever 14 is such that when the lever 14 has been moved into such a position as to move the barb 11 into its operative or extended position, the point of pivotal connection of the link 13 to the lever 14 will lie either in alinement with or within the point of pivotal connection of the lever 14 to the tine. Thus, the upward pressure exerted on the link 13 by the load supported by the barb 11 will be exerted on the lever 14 in such a manner as to lock the link 13 against upward movement and thus hold the barb 11 in its extended position against the weight of the load. It is also desirable to provide means for retaining the barbs 11 in any adjusted position until positive force has been applied thereto to move the same. To this end I prefer to insert a friction member either between each lever 14 and the tine by which it is supported or between each barb 11 and the tine by which it is supported. In either case the arrangement of the friction member would be substantially the same and this arrangement is shown in Figs. 4 and 5 of the drawings. In the present instance I have shown the friction as applied to the lever 14 and this is preferably accomplished by providing each lever with an annular groove or pocket 16 surrounding its pivotal center and adapted to receive a friction member, such as a coil of metal 17 adapted to exert pressure against the adjacent side of one of the members of

the tine and against the lever 14 and thus prevent the free movement of the lever about its pivotal center.

Inasmuch as the fork is built without the usual cross bar it is necessary to provide some means for tripping the levers 14 that will operate without the guide which is ordinarily provided in the cross bar. This I prefer to accomplish by providing the inner end of each lever with a guide, which, in the present instance, consists of a ring or link of metal 18. The upper end of the trip rope 19 extends through the guides 18 and is then connected to the body portion of the rope, as shown, to form a loop 20 which extends through both the guides 18. A downward pull upon this rope at practically any angle on either side of the fork will move the inner ends of both levers downwardly and thus move the barbs 11 into their inoperative positions and release the load.

When the fork hangs freely from the hoisting rope without a load the two tines 1 will occupy substantially parallel positions, their inward movement being limited by the stops 7 of the stop block 4. When it is desired to load the fork, the levers 14 are moved downwardly into a substantially horizontal position, as shown in Fig. 1, thus folding the barbs into a position between and substantially parallel with the members of the tines and leaving the tines free and unobstructed to enter the hay. The barbs are retained in their adjusted positions, against the weight of the inner ends of the levers and the trip-rope carried thereby, by the friction applied to the levers. As the tines enter the hay the beveled inner edges of the points 2 tend to cause the lower ends of the tines to diverge or move apart and this divergence continues as the fork is inserted farther into the hay. As the fork is pressed into the hay the levers 14 will come into contact with the upper portion of the load and will be moved upwardly into a position such as to partially or wholly extend the barbs 11, thus rendering the fork partially automatic in its loading or setting operation. If the automatic movement of the levers 14 is not sufficient to entirely extend the barbs 11 and lock the same in their open position this movement is completed by hand. The load is then hoisted, and, as the weight of the same comes upon the tines, they move toward each other, thus tending to grapple the load. When the load has reached the desired position a downward pull on the tripping rope 19, which is loosely connected to the inner ends of both the levers 14, will move the levers downwardly, regardless of the angle at which the pull is exerted so long as it is in a downward direction. This downward movement of the levers 14 folds the barbs 11 between the members of the

tines and thus releases the load and permits the same to drop.

I wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

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

1. A hay fork comprising a pair of tines having their upper ends pivotally connected one to the other, and means carried by said fork near the point of pivotal connection of said tines for limiting the movement of said tines about said pivotal center.

2. A hay fork comprising a pair of tines having their upper ends extending inwardly and pivotally connected one to the other, and means carried by said inwardly extending portions of said tines for limiting the movement of said tines about their pivotal center.

3. A hay fork comprising a pair of tines having their upper ends overlapping, a pivot pin extending through the overlapping portions of said tines, and a block mounted on said pivot pin and having stops adapted to engage said tines to limit their movement about said pivot pin.

4. In a hay fork, a pair of tines each comprising two members, said tines being arranged with their upper ends overlapping, a pivot pin extending through both members of the overlapping portions of said tines, a block mounted on said pivot pin between the inner members of said tines and having stops adapted to engage said tines and limit their movement about said pivot pin.

5. In a hay fork, a pair of tines, each comprising two members, said tines being arranged with their upper ends overlapping, a pivot pin extending through said overlapping portions of said tines, a block mounted on said pivot pin and having stops arranged on the opposite sides of said pivot pin and adapted to engage one of the members of each of said tines to limit its movement about said pivot pin.

6. In a hay fork, a pair of tines having their upper ends turned inwardly and each comprising two members, one of the members of each tine being longer than the other member of that tine, said tines being arranged with their adjacent ends overlapping and the longer member of each tine lying between the two members of the other tine, a pivot pin extending through both members of each of said tines, a block mounted on said pivot pin between the inner members of said tines and having stops on each side thereof arranged to engage the adjacent inner members on both sides of said pivot pin.

7. A hay fork comprising a pair of tines,

each of said tines having its upper end extending inwardly and overlapping the adjacent end of the other tine, a pivot pin extending through said overlapping tines, a stop block mounted on said pivot pin, adapted to limit the movement of said tines about their pivotal center and having an upwardly extending apertured portion, whereby said fork may be connected to a hoisting rope.

8. In a hay fork, a pair of tines, a barb connected to each of said tines near the lower end thereof, a lever pivotally mounted on each of said tines above said barb and operatively connected thereto, and frictional means for resisting the movement of said lever about its pivotal center.

9. A hay fork comprising a pair of tines, each having a barb movably mounted thereon near the lower end thereof, a lever pivotally mounted on each of said tines above said barb and operatively connected thereto, and a friction member inserted between said lever and said tine to resist the movement of said lever about its pivotal center.

10. A hay fork comprising a pair of tines, each having a barb movably mounted near the lower end thereof, a lever pivotally mounted on each of said tines above said barb and operatively connected thereto, and a spring inserted between said lever and said tine and adapted to frictionally resist the movement of said lever about its pivotal center.

11. A hay fork comprising a pair of tines, each having a barb movably mounted near the lower end thereof, a lever pivotally mounted on each of said tines above said barb and operatively connected thereto, and a spring coiled about the pivotal center of said lever, between said lever and said tine, and adapted to frictionally engage said lever to resist its movement about its pivotal center.

12. In a hay fork, a pair of tines, each comprising two members, a barb pivotally mounted between the members of each tine near the lower end thereof, a lever pivotally mounted between the members of each tine near the upper end thereof, means for operatively connecting said lever to said barb, and a spring coiled about the pivotal center of said lever between one side of said lever and the adjacent member of said tine.

13. A hay fork comprising a pair of tines, a barb movably mounted upon each of said tines near the lower end thereof, a lever mounted on each of said tines above said barb and operatively connected thereto, and a trip rope having its upper end formed into a loop and loosely connected to each of said levers.

14. A hay fork comprising a pair of tines, each having a barb movably mounted thereon near the lower end thereof, a lever mounted upon each of said tines near the

upper end thereof, means for operatively connecting said levers to said barbs, guides carried by the inner ends of said levers, and a trip rope having its upper end formed into
5 a loop and extending through the guides on both of said levers.

15. A hay fork comprising a pair of tines, each of said tines having a barb movably mounted near the lower end thereof, a lever
10 pivotally mounted on each of said tines near the upper end thereof, means for operatively connecting said levers to said barbs, guides pivotally mounted near the inner ends of said levers, and a trip rope having a loop
15 extending through said guides.

16. A hay fork comprising a pair of tines, each tine having a barb movably mounted thereon, a lever mounted on each of said
20 tines above said barb, means for operatively connecting said lever to said barb, friction means for resisting the movement of said lever about its pivotal center, guides pivotally mounted at the inner ends of said levers, and a trip rope having a loop ex-
25 tending through said guides.

17. In a hay fork, a pair of tines, each comprising two members pivotally connected one to the other at their upper ends, a stop
30 block mounted on said fork near the point of pivotal connection of said tines and having stops for limiting the movement of said tines about said pivotal center, a barb movably mounted between the members of each of said tines near the lower end thereof, a
35 lever pivotally mounted between the members of each of said tines near the upper end thereof, means for operatively connecting said levers to said barbs, a guide loosely mounted on the inner end of each of said
40 levers, and a trip rope having a loop at the

upper end thereof extending through the guides in said levers.

18. In a hay fork, a tine, a barb pivotally connected to said tine, means for locking said barb in its operative position, and other
45 means for resisting the movement of said barb about its pivotal center.

19. In a hay fork, a tine, a barb pivotally connected to said tine, and frictional means
50 for resisting the movement of said barb about its pivotal center.

20. In a hay fork, a tine, a barb pivotally mounted on said tine, a lever pivotally mounted on said tine and operatively connected to said barb, and a friction member
55 inserted between one of the above-mentioned members and said tine to resist the movement of said barb about its pivotal center.

21. In a hay fork, a pair of tines, barbs pivotally mounted on said tines, levers pivotally mounted on said tines and operatively
60 connected to the respective barbs, and friction members inserted between one of the above-mentioned members and said tine to resist the movement of said barb about its
65 pivotal center.

22. In a hay fork, a pair of tines, a barb connected to each of said tines near the lower end thereof, a lever pivotally mounted on each of said tines above said barb and op-
70 eratively connected thereto, means for retaining said barb in its operative position, and other means for resisting the movement of said lever about its pivotal center.

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

PHILIP A. MYERS.

Witnesses:

F. B. KELLOGG,
R. M. TUBBS.