No. 619,186. Patented Feb. 7, 1899.

H. T. KINGSBURY.

REPAIR AND ASSEMBLING JACK.

(Application filed Mar. 12, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

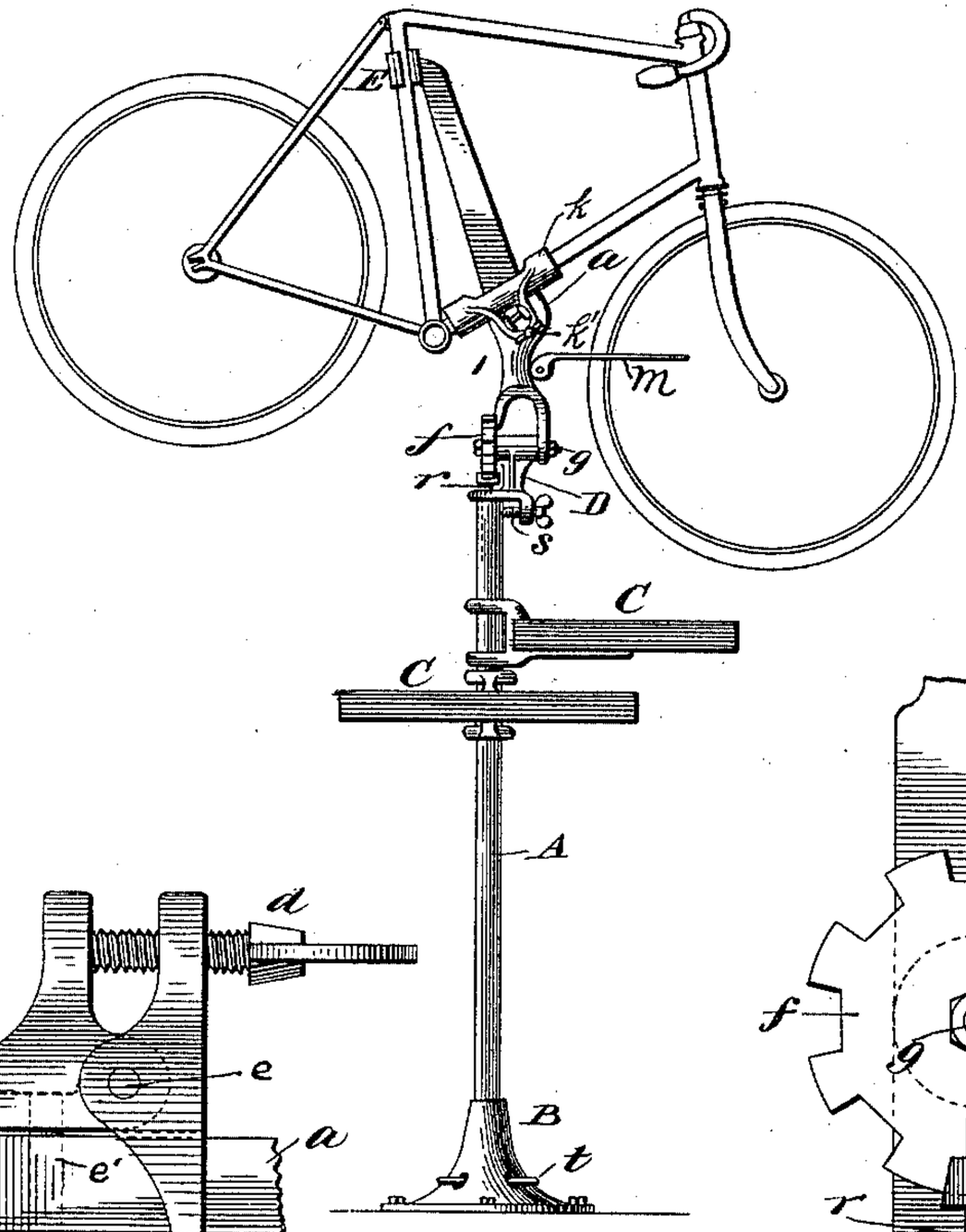


Fig. 6

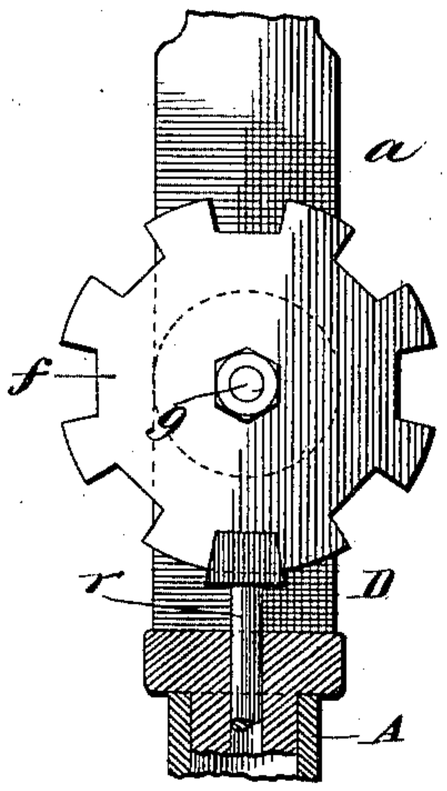


Fig. 2

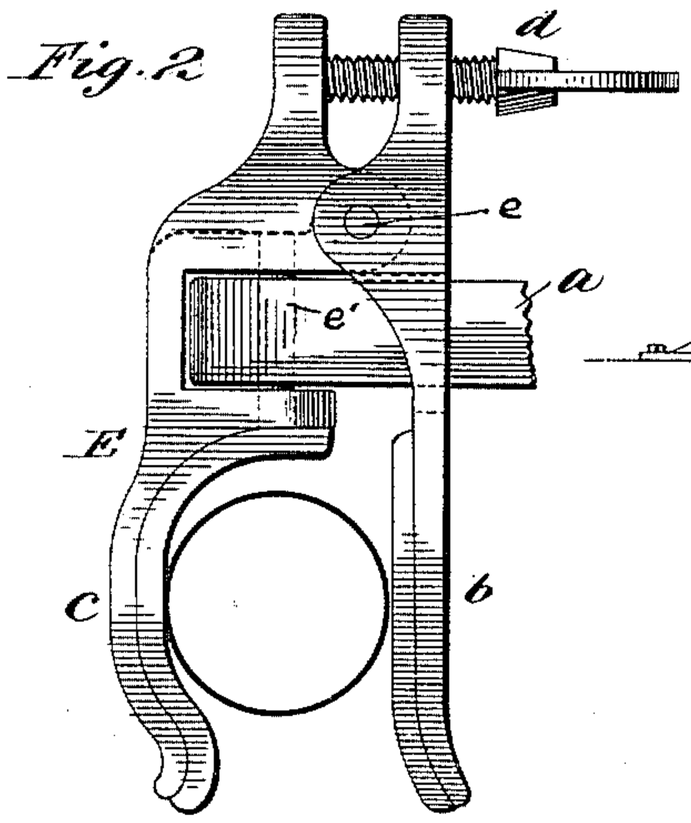
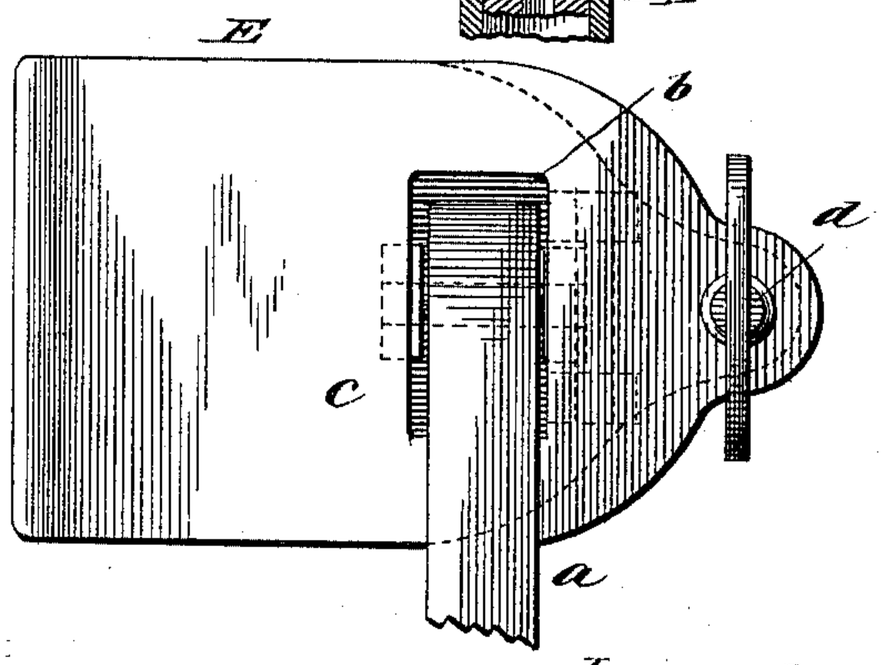


Fig. 3



Witnesses.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 4

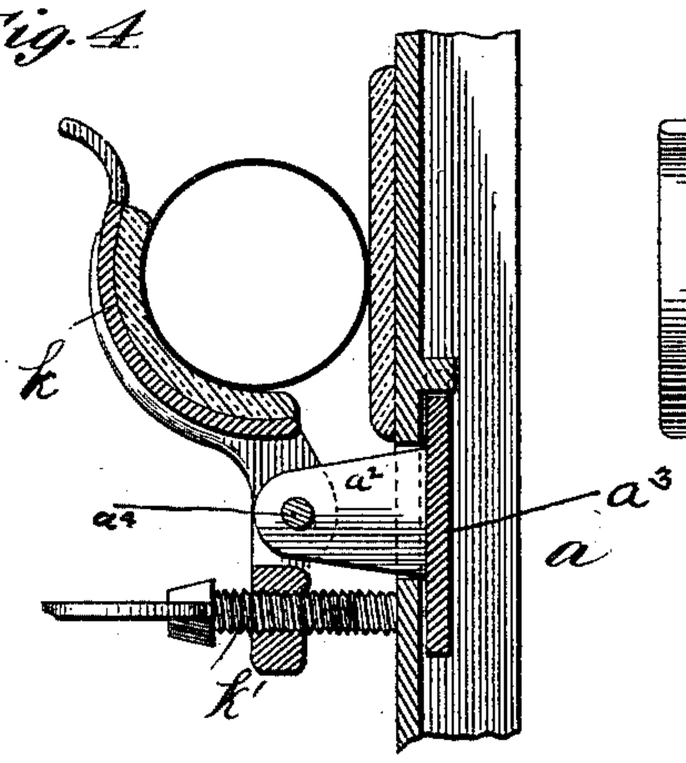


Fig. 5

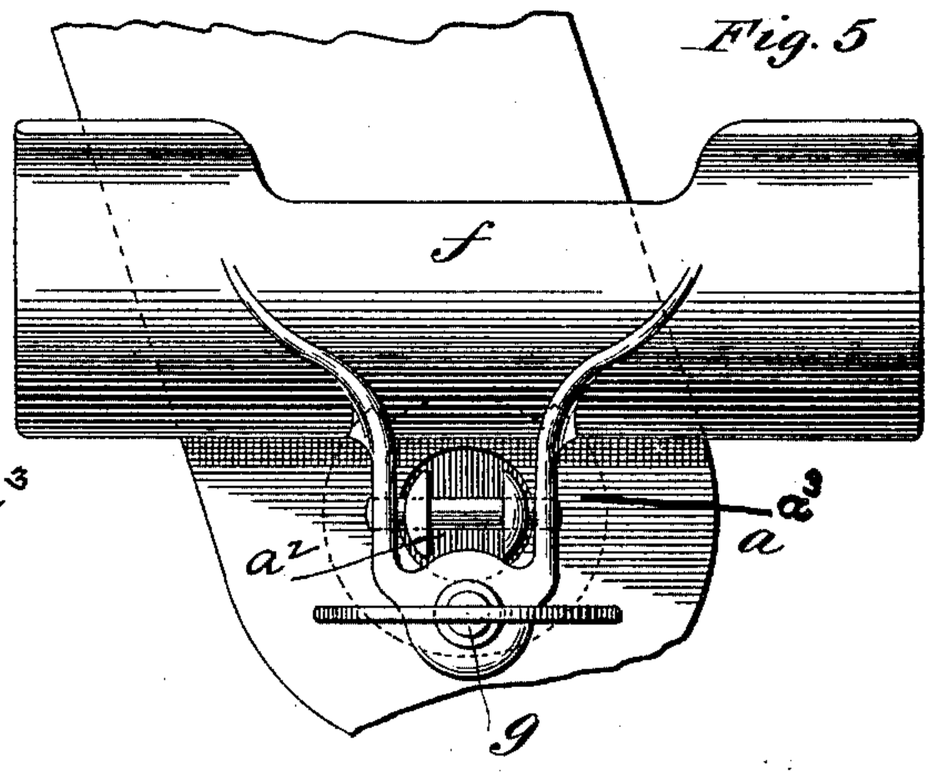
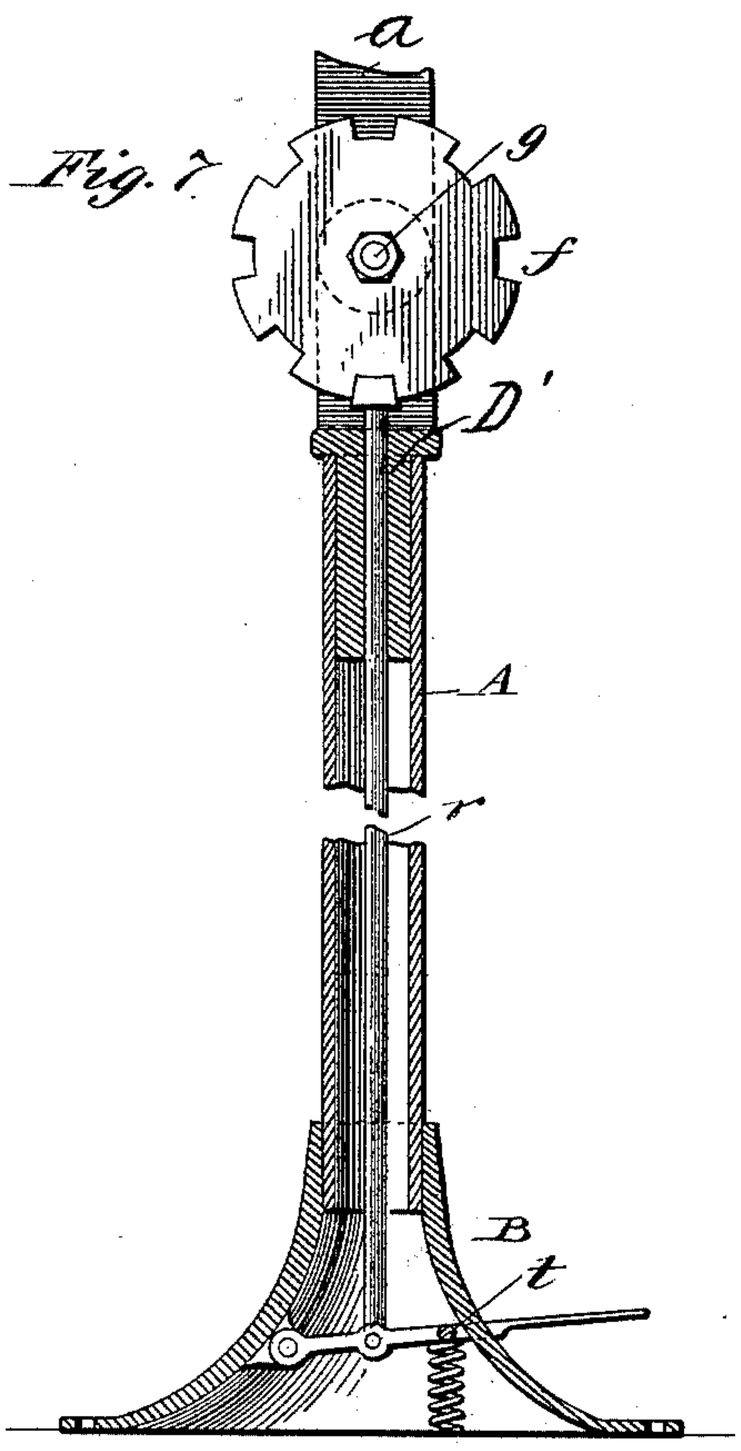


Fig. 7



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UNITED STATES PATENT OFFICE.

HARRY T. KINGSBURY, OF KEENE, NEW HAMPSHIRE.

REPAIR AND ASSEMBLING JACK.

SPECIFICATION forming part of Letters Patent No. 619,186, dated February 7, 1899.

Application filed March 12, 1897. Serial No. 627,160. (No model.)

To all whom it may concern:

Be it known that I, HARRY T. KINGSBURY, a citizen of the United States, residing at Keene, in the county of Cheshire, State of New Hampshire, have invented certain new and useful Improvements in Repair and Assembling Jacks, of which the following is a description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to an improvement in devices designed especially for the use of bicycle repairmen, the object being to provide a repair and assembling jack upon which a bicycle-frame may be supported for assembling the crank-fittings, for assembling or taking out the various cones, bearings, &c., or for holding the assembled wheel in any position to be operated upon.

The invention consists in the matters hereinafter described, and referred to in the appended claims.

In the accompanying drawings, which illustrate the invention, Figure 1 represents a side elevation of my improved universal repair-jack. Figs. 2 and 3 are detail views, partly in section, of the upper clamp which embraces the bicycle-seat-post tube. Figs. 4 and 5 are detail views, partly in section, of the lower clamp or grip for that part of the bicycle-frame extending between the crank-hanger and the handle-post tube. Fig. 6 is a detail view of the means for swinging and holding the supporting-arm on its pivot; and Fig. 7 is a sectional view of the upright standard, showing the connections between the foot-lever and the supporting-arm.

In the drawings, A represents an upright hollow post having at its lower end the inclined circular base B, forming a solid support for the jack. At suitable points in the vertical extent of the post A are secured brackets, to which are attached trays C, adapted to hold tools, parts of the bicycle to be repaired, &c.

Swiveled upon the upper end of the post A by means of a depending tubular hub D′ is an upright bracket D, pivotally supporting by means of the pivot *g* an angular arm *a*, upon which the bicycle to be repaired is supported, the lower part of said supporting-arm *a* being yoke or stirrup shaped to embrace the upper end of said bracket D and be secured thereto by said pivot *g*. One of the arms of said yoke or stirrup is provided with an annular plate *f*, having a series of notches, with which engages the upper end of a rod *r*, projecting downward through the tubular hub D′ and hollow post A to the base and being at the base connected to a lever *t*, the ends of which protrude through slots in the said base within reach of the foot of the operator.

Pressure of the operator's foot upon the ends of the lever *t* disengages the rod *r* from the slots in the plate *f* and leaves the supporting-arm *a* free to be swung up and down on the pivot *g*.

The swiveled bracket D is provided with a lug, through which passes a set-screw *s*, bearing on the hollow upright post A, and by setting the screw the said bracket D may be held rigid.

Above the stirrup or yoke above referred to the supporting-arm *a* has a forwardly-projecting forked piece *m*, adapted to receive between the fork the front wheel to prevent swinging of the handle-bar and front fork and wheel of the bicycle.

The lower end of the supporting-arm *a* is perpendicular, but its upper or longer portion inclines laterally, as shown in Fig. 1, and at the extreme upper end the arm is again bent laterally, and to this bent end is pivoted the clamp E, which engages the seat-supporting bar of the bicycle-frame. This clamp E is formed of two forwardly-projecting jaws *b c*, pivoted together on a vertical pivot *e* (see Fig. 2) and adjusted by the screw *d*, which passes through the tail of jaw *b* and bears against the tail of jaw *c* in rear of the pivot *e*. The jaw *c* is pivoted in front of the pivot *e* to the upper end of the arm *a* by means of the pivot *e′*, which extends horizontally and at right angles to the pivot *g*, on which arm *a* swings. It will be seen, therefore, that the clamp E is free to swing or rock vertically on the arm *a* and that its felt-lined jaws project beyond the front face of the arm to receive the frame-tube, as shown in Figs. 1 and 2. The jaw *b* is provided with a vertical slot *b′*, through which the upper extremity of the arm *a* projects to engage the pivot *e′*, as shown in Figs. 2 and 3.

The arm *a* is provided in its lower angle or bend with a circular opening *a'*, (see Figs. 4 and 5,) and through this opening from the rear projects the rounded-formed stud or pivot a^2, carried by a circular plate a^3 of greater diameter than the said opening. Thus the stud or pivot is free to turn in the opening. *k* is a clamping-jaw extending approximately parallel with arm *a* and pivoted between its ends to the forked stud a^2, as shown clearly at a^4 in Figs. 4 and 5, and provided in its lower end or tail with a set-screw *k'*, which bears against the front face of arm *a*, and thus adjusts the upper end of the jaw *k* toward and from the arm *a*. The jaw *k* and opposed face of the arm *a* are also provided with a soft lining k^2. The clamp *k* opens upwardly to receive the lower frame-bar, and the upper clamp E opens forwardly to receive the vertical frame-bar, and the two clamps E *k* turn on parallel axes *e'* a^2, so as to clamp the bicycle-frame to arm *a* regardless of any differences in the angles of the frame-bars to each other. All portions of the arm *a* lie in the same plane as the pivot *g*, so that when a bicycle-frame is clamped to the front face of the said arm it may be held flatwise through an arc of one hundred and eighty degrees. The bicycle-frame may be held in a horizontal flatwise position at either side of the standard.

In operation the bicycle is clamped to the jack, as indicated, and the rod *r* is disengaged from the slots in the plate *f* by pressure of operator's foot on the lever on the base, thus leaving both hands free to guide the machine. For example, to assemble the crank-fittings the machine is placed on its side in a horizontal plane and the crank-axle is inserted part way, while the balls of the right bearing are put in place. The axle is then grasped with one hand and the bicycle with the other hand, the foot pressing on the lever at the base, and the machine is reversed to its opposite side for inserting the balls and the cone in the left bearing. The bicycle can also be turned one-half way over or reversed side up for taking out or assembling the front forks.

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

1. The combination with a supporting-arm, of an upper clamp comprising two forwardly-projecting adjustable jaws pivoted together and one of said jaws pivoted between its ends to the upper end of said arm, a clamp provided with a lower jaw having an adjusting-screw, and a horizontal rotary stud turning in an opening in the arm and to the forward end of which said lower jaw is pivoted; substantially as described.

2. The combination with a standard and the swinging arm at the upper end thereof, of an upper clamp comprising two forwardly-projecting adjustable jaws pivoted together and one of said jaws pivoted between its ends to the upper end of the arm, a lower jaw, having an adjusting-screw, and a horizontal rotary stud turning in an opening in the arm and to the forward end of which said lower jaw is pivoted; substantially as described.

3. A bicycle-jack comprising a tubular standard, a bracket having a tubular hub turning in the upper end of the standard, a horizontal bearing at the upper end of the bracket, a vertically-swinging arm pivoted to said bearing and provided at one side with a circular toothed plate or ratchet concentric with its axis, a treadle-operated rod extended up through the standard and bracket-hub into engagement with said plate or ratchet to lock the arm throughout an arc of about one hundred and eighty degrees, and clamps on the arm to hold a bicycle-frame flatwise thereto; substantially as described.

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

HARRY T. KINGSBURY.

Witnesses:

WALLACE L. MASON,

JOHN M. CONNOR.