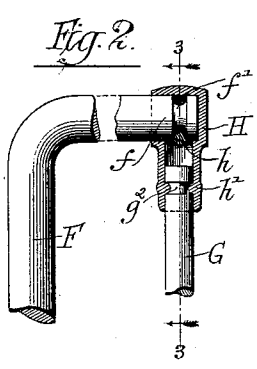
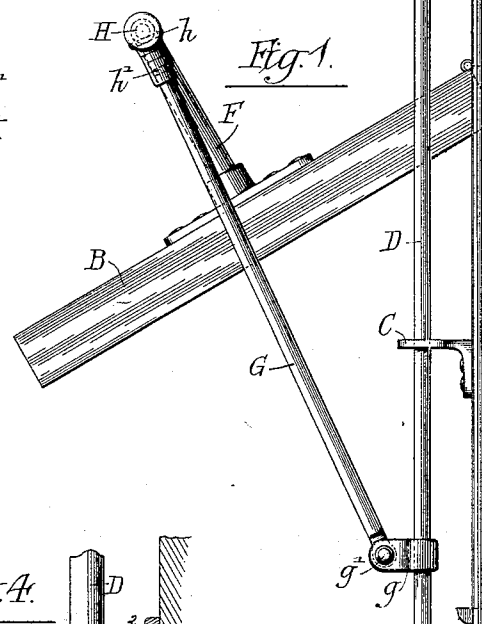
(No Model.) 2 Sheets—Sheet 1.

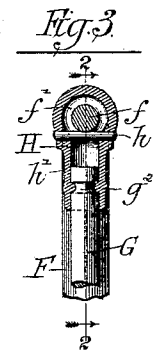
E. PAYSON.

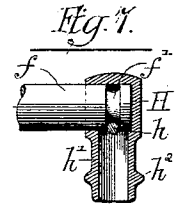
TRANSOM LIFTER.

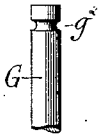
No. 482,024. Patented Sept. 6, 1892.

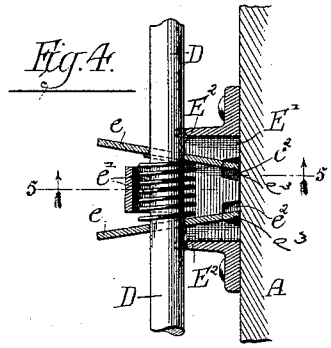


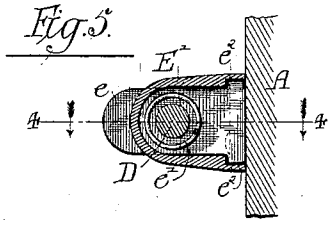


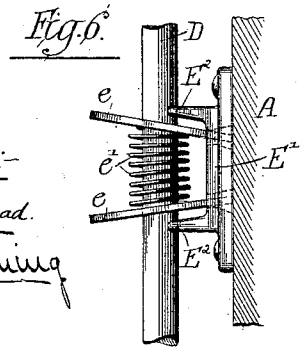


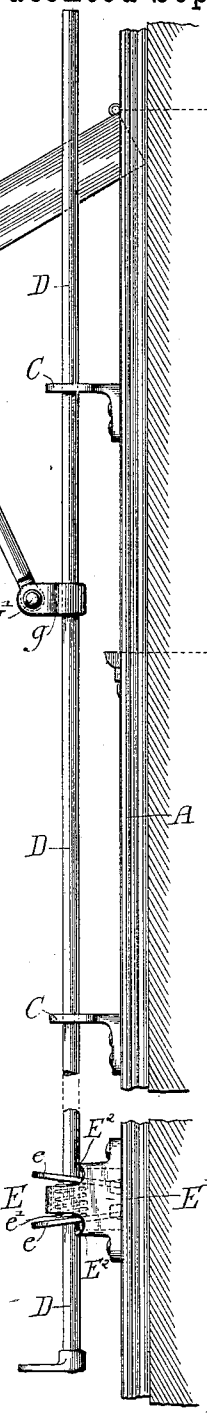












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(No Model.) 2 Sheets—Sheet 2.

E. PAYSON.

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Fig. 8.

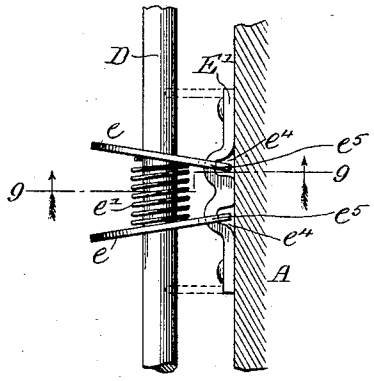


Fig. 9.

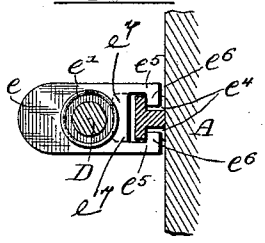


Fig. 10.

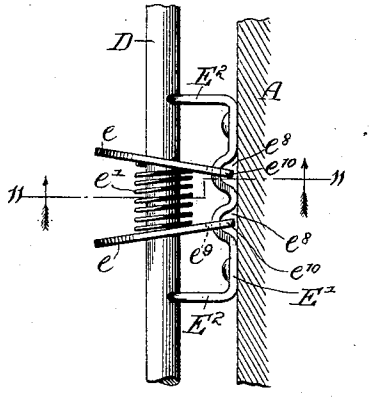
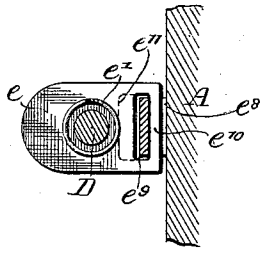


Fig. 11.



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UNITED STATES PATENT OFFICE.

EDWARD PAYSON, OF CHICAGO, ILLINOIS.

TRANSOM-LIFTER.

SPECIFICATION forming part of Letters Patent No. 482,024, dated September 6, 1892.

Application filed October 18, 1890. Serial No. 368,529. (No model.)

To all whom it may concern:

Be it known that I, EDWARD PAYSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Transom-Lifters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in transom-lifters of that class which embrace a rod adapted to slide vertically on the jamb or door casing, an arm or bracket attached to the transom and extending outwardly substantially at right angles to the latter, and a connecting-rod or pitman pivotally connected with the said bracket and with the said vertical rod, so that when the said rod is moved up or down a swinging movement is imparted to the transom.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of a transom with my improved lifter applied thereto. Fig. 2 is an enlarged sectional view of the connection between the transom-bracket and the upper end of the pitman. Fig. 3 is a sectional view of the same, taken on line 3 3 of Fig. 2. Fig. 4 is a vertical sectional view of the clutch or holding device, which is located upon the jamb and grips the vertical rod to hold it in a desired position. Fig. 5 is a horizontal cross-section of the same. Fig. 6 illustrates a modified form of said clutch or holding device. Fig. 7 is a sectional view of the fitting or head, which unites the upper end of the pitman with the outer end of the transom-bracket and illustrates the manner of attaching the fitting to the upper end of the pitman. Fig. 8 is a view in side elevation of another form of clutch or holding device embodying the main feature of my invention. Fig. 9 is a sectional view of the same, taken upon line 9 9 of Fig. 8. Fig. 10 is a side elevation of still another embodiment of the main features of my invention. Fig. 11 is a section of the same, taken upon the line 11 11 of Fig. 10.

In the drawings, A indicates the jamb, B the transom, and C C apertured guides located upon the jamb and arranged vertically one above the other.

D is an operating-rod arranged to slide vertically in said guides C C.

E indicates as a whole a clutch or holding device supported upon the jamb and adapted to engage the operating-rod D.

F is an arm or bracket, which is attached to the transom and which is provided with a right-angled bend, Fig. 2, so that its end extends past or outside of the transom. Said arm or bracket is herein called the "transom-bracket."

G is a pitman or connecting-rod, which is pivotally connected with the end of the bracket and with the vertical operating-rod D and transmits motion from said rod to the bracket, in a manner heretofore common and well understood.

The clutch E consists of a supporting plate or casting E′, upon which are supported two clutch plates or leaves *e e*. As illustrated in said drawings, these clutch leaves or plates are pivotally supported at their inner ends within said supporting-plate E, their outer ends being left free to move toward or away from each other. A spring *e′* is applied between the said clutch plates or leaves to throw apart or separate the free ends of the same. The leaves *e e* are provided with apertures through which the rod D passes, and the spring *e′* is conveniently located around said rod, as shown in the drawings. The apertures in said leaves are made slightly larger than the rod D, so as to permit the latter to slide freely through said apertures when said leaves are perpendicular to the rod, or nearly so, and it follows that when the leaves *e e* are inclined or spread apart from each other, as shown more particularly in Figs. 1, 4, and 6, the sides of said apertures will be brought into contact with the rod in such manner as to securely grip and hold said rod and prevent any motion thereof in either direction. It is obvious that any strain upon the rod D or the transom will tend to throw said gripping leaves or plates farther from a horizontal position, and it follows therefore that such strain upon the rod or transom will tighten the grip of said plates upon the rod. It is furthermore obvious that the lower one of said plates *e* holds said rod against downward

pressure and the upper plate holds said rod against movement upwardly, so that the two plates together hold the rod from shifting in either direction.

In order to open or adjust the transom, it is only necessary to grasp the projecting ends of the leaves *e e* and press them toward each other until they come to a position approximately parallel with each other, when the rod may be raised or lowered, so as to adjust the transom into any desired position, after which, upon releasing the plates or leaves *e e*, the spring will instantly spread them apart, so as to again grip the rod D and securely lock the same in its changed position.

As shown in Figs. 1 to 5, E′ is made with a central opening of suitable width to receive the inner ends of the clutch plates or leaves, and the hinged or pivotal joint between the said clutch-leaves and the plate or casing E′ is formed by providing in the opposite walls of the said central opening adjacent to the inner or rear face of the plate notches e^2 e^2 and upon the inner ends of said clutch-leaves laterally-projecting lugs or ears e^3 e^3, which enter or engage said notches e^2 e^2. The said notches e^2 e^2 open at the rear face of the plate E′ or that which is secured against the jamb or door casing, and the lugs are engaged with the notches by inserting the leaves through the opening in the plate from the rear side of the latter, the said lugs being held in place within the notches by the presence of the jamb or door casing, against which the plate is secured. By the construction described the pivotal joints of the said clutch-leaves are located as far as possible from the rod without necessitating the cutting or recessing of the jamb or casing to receive the plate E′, it being obvious that the inner ends of the leaves come against the casing and are held in place within the notches by the same. This construction is highly advantageous, inasmuch as it enables the rod to be placed close to the jamb, while at the same time providing a suitable distance between the rod and the pivots of the clamp-plates to insure the proper action of the latter. The notches e^2 e^2 are, as a separate improvement, provided with flat or straight surfaces or walls parallel with the inner surface of the plate, and said notches are made wider than the thickness of the lugs and deeper laterally than the length of said lugs, as seen in the drawings, Figs. 5 and 6. By the contact of the said lugs with the flat surfaces of the said notches the said plates will be held in position to properly engage the rod, while at the same time the plates are left free to adjust themselves laterally and in other directions relatively to the rod, as may be necessary by reason of any slight inaccuracy in the location of the plate or other parts upon the door-casing. It will be readily seen that to obtain good results in the operation of the clamp-plates the inner or pivoted ends of the same should be held at a definite distance from the rod, and the flat inner ends or surfaces of the notches accomplish this result by affording flat surfaces parallel with the rod, against which the lugs on the clamp-plates bear outwardly when the clutch-rod is gripped by the clutch-plates. The said plates are, however, free to shift freely either sidewise or by the lifting or lowering of either of their side edges, while the lugs still remain in bearing against said flat surfaces of the notches, so that the plates automatically adjust themselves to the rod, and slight inacuracies in the form or location of the parts have no effect upon the operation of these parts. It is obviously not essential that the plate E′ should have a single central opening to receive the inner ends of the clamp-plates, and said plate may be constructed otherwise in practice in this as well as in other particulars.

As a separate and further improvement in connection with the plate E′, provided with notches, and the clutch-plates having lugs to engage said notches, as above described, the locking device (shown in Figs. 1 to 5) is provided upon the front face of the said plate with projecting flanges or wings E^2 E^2, the outer edges of which stand adjacent to the inner surface of the operating-rod when the parts are in operative position; but which are preferably free from contact with said rod at such time. Such flanges or wings E^2 E^2 serve to hold the parts of the clutch device from becoming disconnected from the rod and from each other during transportation, it being obvious that when the plate or casting E′ is detached from the door-casing if the flanges E^2 E^2 were not present the rod would be free to fall or move toward the base of the plate, so as to allow the lugs on the leaves to escape from the notches, and thus loosen the parts in such manner as to allow them to slip from the rod and become detached from each other. When said plates or flanges E^2 E^2 are present, the parts constituting the clutch device are assembled or placed together by the manufacturer and the rod slipped through the same, after which the action of the spring holds the clutch device immovably on the rod and the parts cannot become detached except by closing together the clutch-plates and slipping the clutch endwise on the rod until it is free from the end of the same. The said wings or flanges E^2 E^2 may constitute part of a casing or housing which embraces or surrounds the leaves or spring, or both, or they may form independent projections on the plate E′. In Figs. 1, 4, and 5, for instance, the plate or casting E′ is made in such shape as to form a casing or housing, which surrounds the inner parts of the leaves and the spring, and the flanges E^2 E^2 constitute the upper and lower end walls of the casing; but in Fig. 6 I have shown a holding device somewhat different from that shown in Figs. 1 to 5, and the plate E′ is flat and without any casing or housing for the parts, and is provided with two projections E^2 E^2, the outer edges of which come close to the rod D,

and which serve to retain the leaves or clutch-plates from displacement, as hereinbefore stated.

It is essential to a practical and marketable transom-lifter that the operating-rod should be arranged close to the door casing or jamb, and I have found it highly desirable that the pivots of the clutch plates or leaves should be arranged at a considerable distance from the operating-rod, or, in other words, that the apertures in said leaves through which the rod passes should be somewhat distant from the pivots of the leaves in order that the leaves may properly catch or grip the rod when swung into an inclined position relatively to the rod. Both of these desirable conditions in a transom-lifter—that is to say, the location of the lifting-rod near the jamb, while at the same time the pivots of the clutch-leaves are kept at the greatest possible distance from the operating-rod—are obtained by the construction above described, and shown in Figs. 1 to 6, in which the pivots of the clutch-leaves are formed by means of lugs or pivot-pins on the inner ends of said leaves, which lugs or pivot-pins are confined between the main plate or casting and the door casing or jamb, so that the inner ends of the plates are in effect retained in contact with the jamb, and the pivots of the clutch-leaves are thus brought to the greatest distance from the rod which is possible without sinking the plate into the jamb, as hereinbefore stated. This same general feature of construction and the favorable results arising therefrom may, however, be present in locking devices differing in other respects from those above described. In Figs. 8, 9, 10, and 11, for instance, I have shown locking devices which contain the general features above referred to, but which differ in details of construction from those shown in Figs. 1 to 6.

In Figs. 8 and 9, E′ is a base-plate or casting having in its opposite exterior edges recesses e^4 e^4, which open at the inner face of the plate or that which is placed in contact with the door-casing. The clamp-plates *e e* are in this instance provided at their inner ends with arms e^5 e^5, which extend outside of or embrace the plate E′, and which have on their ends inwardly-directed lugs or pivot-pins e^6 e^6, which are adapted to engage the notches or recesses e^4 e^4, above described. In this construction the plate E′ will be preferably thickened or provided with projections on its outer face to receive said notches, and the edges of the plate will be made of uniform thickness above and below, as well as opposite the notches, to enable the plates to be engaged with the casting by slipping the ends of the latter through the space between the arms e^5 e^5. The central openings of the clamp-plates may, however, be enlarged, as shown in dotted lines at e^7 e^7 in Fig. 9, and in such case the edges of the plate E′ need not be uniform in thickness; but when the openings in the clamp-plates are so enlarged it will commonly be desirable to provide the base-plate E′ with projections corresponding with those shown at E^2 E^2 in Figs. 1, 4, and 5, in order to retain the lugs or pivot-pins in engagement with the notches of the base-plate during transportation and handling of the lifter. Such projections are indicated by dotted lines at E^2 E^2, Fig. 8. When the clamp-plates and base-plate are made as shown in full lines in Figs. 8 and 9, said parts will obviously remain permanently interlocked when placed together without the presence of any part corresponding with said projections E^2 E^2. In this construction, as in that hereinbefore described, the lugs or pivot-pins on the inner ends of the clamp-plates are brought in contact with the door-casing, and the said pivots are therefore as far as possible from the rod.

In Figs. 10 and 11 the base-plate E′ is shown as having on its under or inner surface two transverse grooves or recesses e^8 e^8, extending across the entire width of the plate, and the clamp-plates as having openings e^9 e^9, through which the base-plate is inserted in placing the parts together, said openings forming cross-bars e^{10} e^{10}, which engage the recesses or grooves e^8 e^8, and constitute the pivot or pivot-pin upon which the clamp-plates turn. In this construction therefore the pivots of the clamp-plates are located at a suitable distance from the operating-rod, while at the same time the latter is located close to the door-casing.

As shown in Figs. 10 and 11, the plate E′ is made of sheet metal and bent to form the recesses e^8 e^8, and is provided at its ends with integral outwardly-bent arms or projections E^2 E^2, like those shown in Figs. 1, 4, and 5. Although said projections may not in all cases be found necessary in a device in which the clamp-plates are interlocked with the base-plate, as shown in Figs. 10 and 11, yet such projections may be found desirable to aid in retaining the locking device in place on the rod during transportation or to more firmly hold in place the rod when the same is locked in use. It will of course be understood that in case the base-plate used in connection with apertured clamp-plates is not made of uniform thickness, so that it can be slipped through narrow apertures, the said apertures may be widened, as shown in dotted lines at e^{11}, Fig. 11, in which case the clamp-plates will be held in working position by the presence of the door-casing, which will retain the cross-bars e^{10} e^{10} within the notches e^8 e^8, and the presence of the projections E^2 E^2 will be of value in order to prevent the said cross-bars coming out of the notches and the holding device thereby becoming loose on the rod during the transportation.

One of the principal advantages gained by the construction in which the clamp-plates are supported by lugs or pivots engaged with notches or recesses on the inner surface or face of the base-plate, as herein described, is

that this construction enables the clamping device to be very cheaply constructed, inasmuch as no handwork in drilling, riveting, or otherwise fitting or connecting the parts is required, as is necessary when pivotal joints of the usual construction are employed.

Instead of confining the pivots of the clamp-plates directly in contact with the wood composing the door-casing, an additional plate, preferably of thin sheet metal, may be placed between the base-plate or casting and the casing, and such plate when used may be held in place either by the screws which secure the base-plate to the door-casing or it may be riveted or otherwise permanently attached to the base-plate. Furthermore, when an additional plate is used between the main casting, or base-plate or casting and the door-casing, such plate may be made of cast metal, and the recesses to receive the lugs or pivots of the clamp-plates may be formed partially in the base-plate and partially in such additional plate or entirely in either of said plates, it being obvious that in either case the same general advantages above pointed out are obtained—that is to say, the holding device may be easily and cheaply constructed and put together without special handwork in drilling or riveting in making the pivotal joints, while at the same time the pivots of the clamp-plates are brought close to the door-casing.

The pitman G is connected with the vertical rod D by a clip or suitable fastening g, within which the lower end of said pitman is secured by a pivot g'. Said clip or fastening is rigidly secured to the rod D, so that while said pitman is free to swing about said pivotal support g' it is prevented from moving lengthwise along the rod D.

As a separate and further improvement I provide a novel form of connection between the pitman G and the projecting arm or bracket F. (Shown more particularly in Figs. 2, 3, and 7.)

H indicates a recessed connecting piece or head swiveled to the laterally-projecting end or trunnion f of the bracket F in such manner that when the rod D is raised or lowered and the pitman G acts upon the bracket F to open or close the transom the coupling or head H is free to rotate about said arm. The head is conveniently held in position upon the trunnion f by means of a pin or rivet h, passed through said head and engaging an annular groove f' upon the trunnion f. This groove is cut into the surface of said trunnion at a point which comes within the recess or socket of the head H, and the pin or rivet h serves as a stop to prevent said head from being disconnected from said trunnion. Said head H is formed with a socket h', adapted to be connected with the upper end of the pitman G in such manner as to rotate about said pitman, and is held in position thereon by means of an internal rib or projection formed on or attached to the inner surface of said socket and engaged with an annular groove or recess g^2, formed upon the upper end of the pitman, which engages the socket h'. This internal rib or projection is conveniently formed within the socket and is engaged with the pitman by first forming the head with an external rib h^2, as shown in Fig. 7, the socket for the pitman being made plain, and then after the end of the pitman has been inserted compressing the rib upon the outside of the head, so as to upset the metal forming this portion of the head and force inwardly a portion thereof, so as to form an internal rib corresponding with the annular groove on the end of the pitman, said internal rib or projection being thus made integral with the socket. By the construction shown the head H is free to rotate about the upper end of said pitman, and the bracket F may therefore be turned from one side to the other of the pitman, so as to adapt the device to be connected with either side of the transom and to be used as either a right or left hand transom-lifter, as may be desired.

It has been common heretofore to make transom-lifters changeable from right to left hand lifters by making the pitman or connecting-rod detachable from the bracket. My improved lifter is readily convertible from a right-hand lifter, or vice versa, by simply rotating the arm F and the head H about the upper end of the pitman G, so as to bring the arm F upon the desired side of the latter.

I am aware that transom-lifters have been heretofore made in which the upper end of the pitman has been screw-threaded and adapted to be engaged with a screw-threaded socket upon the head, said pitman terminating in a pin, which passes through an aperture in said head and engages an annular groove in the trunnion upon the projecting-arm; but in this construction there is no permanent connection between the pitman and bracket, it being obvious that there is liability of the head being unscrewed accidentally in handling the device before it is attached to the transom, and in case it is so unscrewed may be disengaged from said annular groove and the connection therefore rendered insecure without the knowledge of the person handling the device. In this prior form of construction, in order to change the device from a right to a left hand lifter, or vice versa, it is necessary to rotate the head about said screw-threaded end of the pitman, and the liability of said head becoming detached from the pitman is therefore increased.

In constructing my improved lifter the transom-bracket and the head H are permanently connected together by heading the rivet h when the parts are put together by the manufacturer, and the connection between the head H and the pitman being likewise permanent the parts are permanently connected, while at the same time they are free to be moved, so as to adapt the device to be attached to the transom at either side thereof. A great advantage gained by this

construction is that there is no liability of the parts which belong together becoming separated in handling.

It is obvious that the only object in making the parts detachable, as heretofore common, is that they may be assembled together at the time the device is attached to the transom, so as to constitute either a right-hand or a left-hand transom-lifter, as may be desired. Much annoyance has heretofore been occasioned from the fact that in equipping a large building with transom-lifters the brackets and other parts are made of different sizes and lengths to correspond with the differences in measurement on the transoms in various parts of the building, and where the parts are made detachable the brackets often become mixed and wrongly applied. It is obvious that by my construction such mistakes are rendered impossible, while at the same time a cheap and durable construction in the lifter is obtained.

I claim as my invention—

1. The combination, with the operating-rod of a transom-lifter, of a clutch or holding device comprising a base-plate adapted for attachment to the door-casing and two apertured clutch-plates engaging said rod, said clutch-plates having at their inner ends lugs or pivot-pins, and the base-plate being made flat on its inner face for contact with the door-casing and provided in such flat inner face with notches or recesses having flat walls or surfaces parallel with the inner face of the base-plate for engagement with the lugs or pivot-pins upon the clutch-plates, substantially as described.

2. The combination, with a transom-lifter bracket and connecting-rod, of a connecting piece or head having a permanent swiveled connection with both the bracket and the connecting-rod, substantially as described.

3. The combination, with a transom-lifter bracket provided with an annular groove near its end, of a connecting-rod provided with a similar groove near its end and a connecting piece or head provided with sockets to receive the ends of the bracket and connecting-rod and with projecting parts entering said grooves to retain the said bracket and connecting-rod in engagement with the said connecting piece or head, substantially as described.

4. The combination, with a transom-lifter bracket provided with an annular groove near its end, of a connecting-rod provided with a similar groove near its end, a connecting piece or head provided with sockets to receive the ends of the bracket and connecting-rod, an integral projection on the head engaging the groove on the connecting-rod to hold the same in the socket, and a rivet inserted through the head and engaging the groove in the bracket, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

EDWARD PAYSON.

Witnesses:
C. CLARENCE POOLE.
GEORGE W. HIGGINS, Jr.