

No. 894,630.

PATENTED JULY 28, 1908.

N. GUDEMAN.

HINGE.

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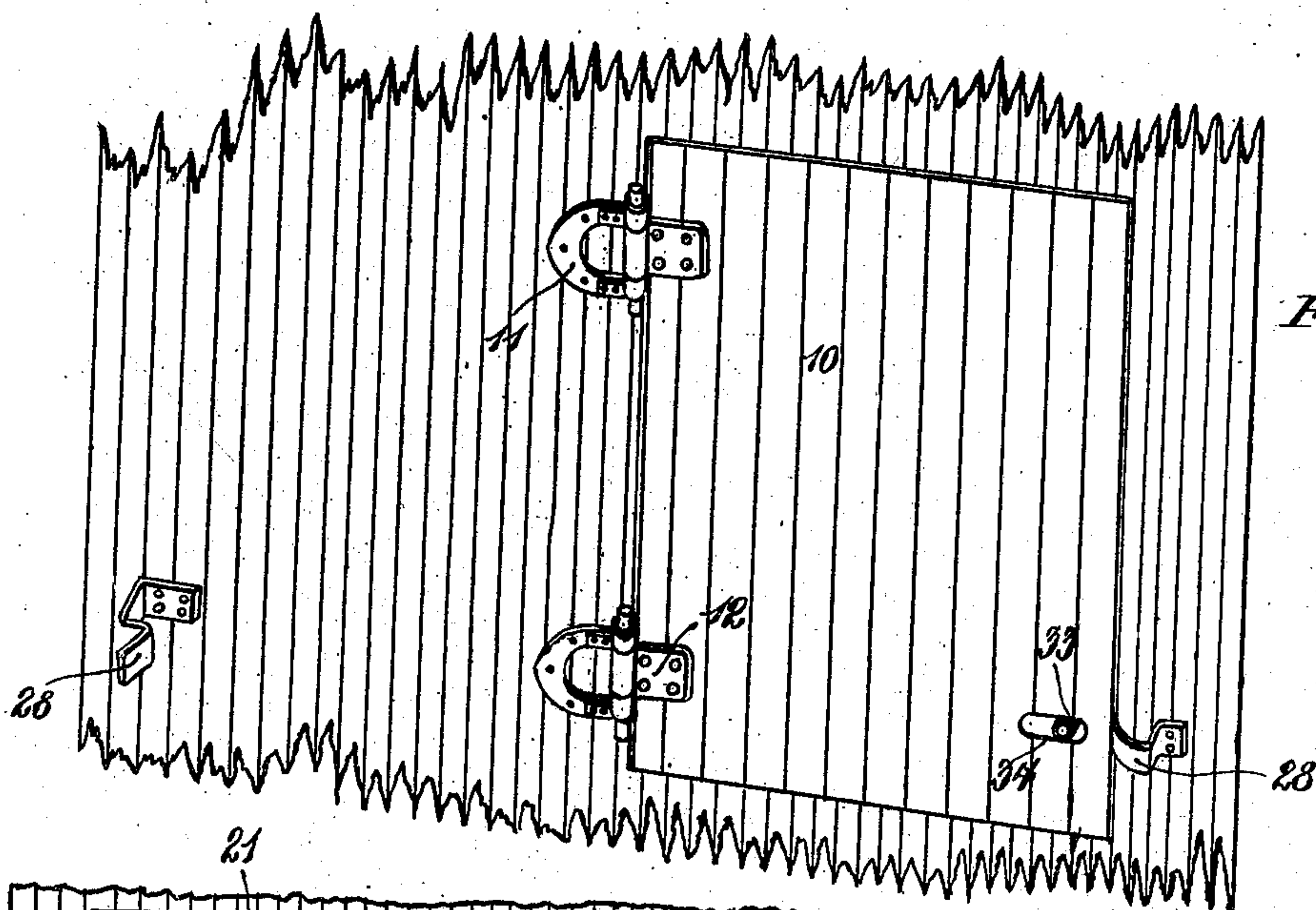


Fig. 1.

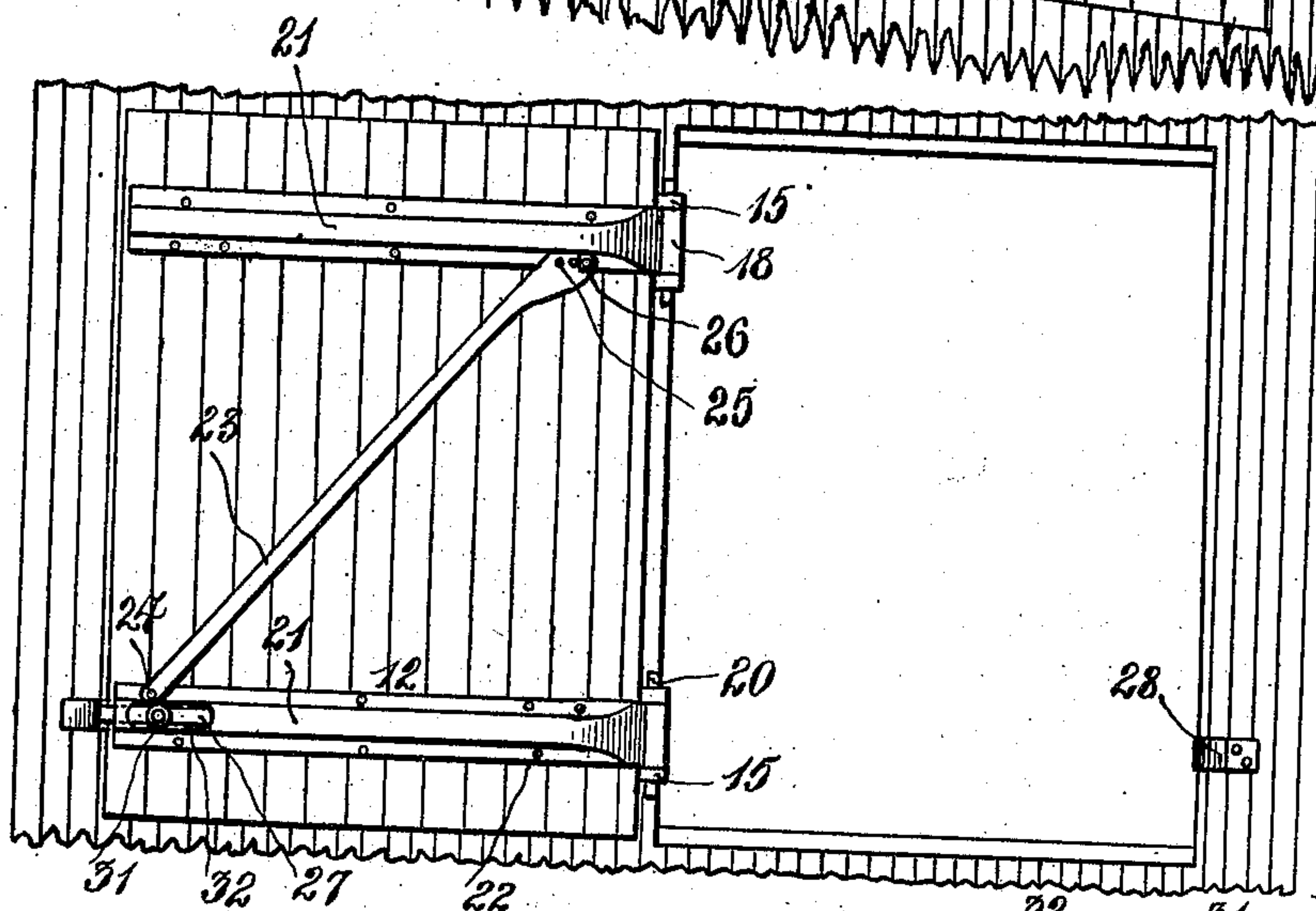


Fig. 2.



Fig. 3.

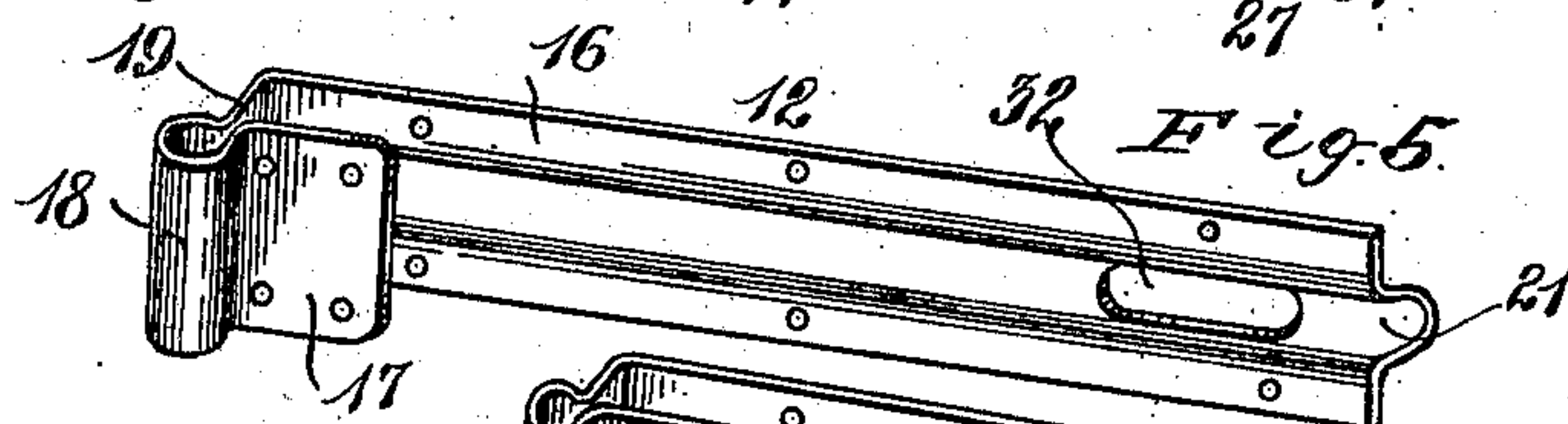


Fig. 4.

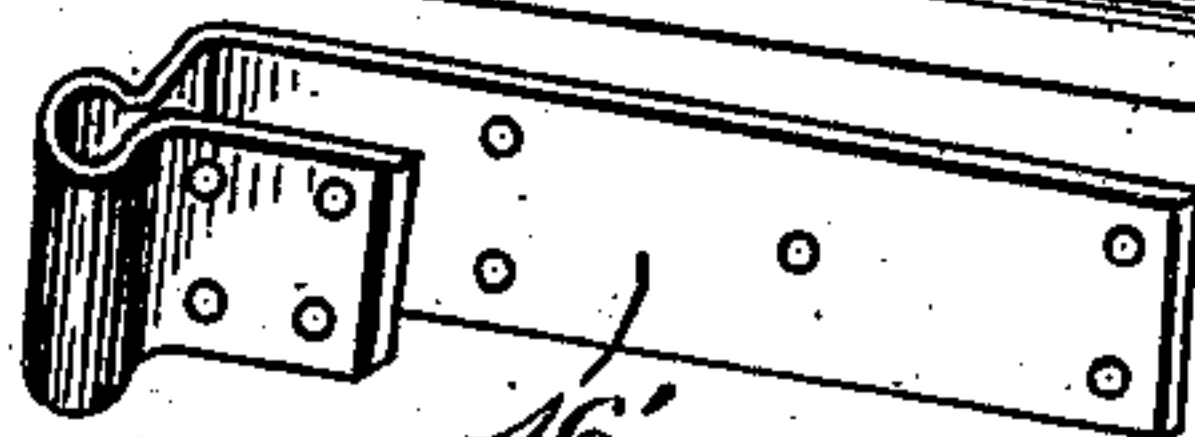


Fig. 5.

Fig. 6.

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HINGE.

No. 894,630.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NATHAN GUDEMAN, a citizen of the United States, residing at Wolcott, in the county of White and State of Indiana, have invented certain new and useful Improvements in Hinges, of which the following is a specification.

This invention relates to hinges, and has particular reference to that type of hinges designed especially for use on doors for barns, stables, cellars, and the like, and also for hinged windows, blinds, shutters, etc. In fact it is designed for use on all sorts of devices where hinges are intended to be used.

The several advantages of this improved form of hinge are fully set forth hereinafter, and illustrated in the accompanying drawings, in which,

Figure 1 is a perspective view indicating a door equipped with a pair of hinges of the character set forth hereinafter, the door being closed; Fig. 2 is a vertical view of the same door, the door being held in open position; Fig. 3 is a transverse sectional view through one of the hinges, the door being closed, and indicating the relation between the locking bolt and the other elements of the invention; Fig. 4 is a detail, on an enlarged scale, showing an end view of one of the hinges, looking toward the edge of the door; Fig. 5 is a detail perspective of the ribbed member of the hinge, and Fig. 6 is a corresponding view of a slight modification to be hereinafter described.

Throughout the following description and on the several figures of the drawings similar parts are referred to by corresponding reference characters.

In the main figures of the drawings the invention is shown as applied to an ordinary type of swinging barn door 10. Each hinge comprises two straps or wings 11 and 12, the wing 11 being shown as secured to a fixed part of the building and the wing 12 being secured to the door. Each member or wing is made preferably of sheet metal, stamped and pressed in the proper form, although it will be understood that such parts may be made of any suitable material and in any preferred manner so long as the essential features of the invention herein set forth are not departed from. The wing 11 is shown as being substantially U-shaped, a body portion 13 of which is flat and lies against the face of the building. The ends 14 of said member are bent over upon themselves to

form knuckles 15, the extreme ends 14 lying against the body portion 13. The fastening means for the hinge preferably pass through the ends 14 as well as through the body portion 13 in securing the same in place.

The member 12 is provided with an extended arm 16 which lies snugly against the inner face of the door 10 and preferably extends across or almost entirely across the width of the door. The member 12 also includes a short arm 17 which embraces the outside of the door adjacent to the pivot of the hinge, adding greatly to the strength at this much desired point, the arms 16 and 17 being parallel to each other.

As plainly indicated in the drawings the member 12 in order to form the arms 16 and 17 and the knuckle between them is bent upon itself, forming the knuckle 18 and a shoulder 19 which extends across the rear edge of the door, bringing the arm 16 upon the inner face of the door as above stated. It will thus be seen that the knuckle 18 will lie upon the outside of the structure and will be in line with the two knuckles 15, and through all of which the usual pivot pin 20 passes. The door may be slightly mortised at its edge to receive the shoulder 19, in order that the door may snugly fit within the door opening. The structure of the hinge thus far described fully avoids the usual disadvantage of the ordinary strap hinge bending and becoming loose at or near the pivotal end, inasmuch as the member 12 rigidly embraces the door both inside and outside. The arm 16 furthermore includes in addition to that portion which lies flat against the inner face of the door a rib 21, which extends longitudinally of said arm throughout its length and which serves several important functions. The rib 21 is substantially cylindrical on the side away from the door and is exceedingly strong for this reason, giving a great amount of rigidity to the arm 16 without an unnecessary weight of material, and thereby rendering the device comparatively inexpensive for manufacture. With a door equipped with door hinges thus described, the usual battens which ordinarily serve to hold the main door members together and to which the usual hinges are commonly secured may be entirely omitted. The arms 16 take the place of such cross pieces, the usual screws or fastening means 22 passing directly through the flat flanges of the members 16 into the door and thereby the door is held as a unitary

structure. By the provision of the strengthening ribs 21 the door may be braced if found necessary by a member 23 which extends between and coöperates with the ribs 21, the ends of the brace 23 being secured to and through the flat edges of the arms 16. The brace at one end is preferably secured permanently by a bolt or rivet 24 and at the other end is provided with a series of holes 25 through one of which said end is secured to and through the other hinge by a removable fastening device such as a screw or bolt 26. In ordinary use the hinges will be sufficiently rigid and strong to maintain the door in proper shape, yet in actual practice it may be found necessary to use said diagonal brace 23. When used the brace will be effectively secured in place by the fasteners 24 and 26 and by coöperation with the ribs 21 directly in engagement with its ends, the door will not be liable to sag. Should, however, such take place any time, the fastener may be removed and the brace set over so as to permit the fastener 26 to be replaced through one of the other holes of the series, and thereby the door will be properly reshaped. A still further function for the rib 21 is to provide a convenient socket for a slide bolt 27, whereby the door may be locked in either its closed or open position by coöperation of said bolt 27 with a catch 28. A spring 29 is located within the rib 21, and tends normally to eject the bolt outwardly so as to coöperate with either of the catches 28. The coil spring 29 may be of any desired length, and if the length of the rib is too great for the spring to be used a block 30 may be secured at any desired point in the length of said rib to constitute a fixed abutment for the spring. In order to manipulate the bolt it is provided with a finger piece 31 projecting laterally

through a slot 32 formed in the rib, so that the bolt may be readily moved when the door has been held open. On the other side of the bolt is a corresponding finger piece 33 extending through a slot 34 in the door, and whereby the door may be unlocked in order to open it.

In Fig. 6 there is shown a form of the invention adapted for lighter work and of slightly simpler construction. In this form of the invention the strengthening and bracing rib is omitted from the arm 16', but with respect to its means for embracing the edge of the door and serving as a substitute for the usual cross batten of the door this form of the invention is similar to that before described.

Having thus described the invention, what is claimed as new, is:

In combination with a door composed of a plurality of elements, the hereindescribed hinge comprising two wings composed preferably of sheet metal and provided with co-operating knuckles, the structure of such wings being bent to form such knuckles, one of said wings comprising an arm on the outside of the door adjacent to its knuckle, a shoulder extending laterally therefrom across the rear edge of the door, a long rigid arm extending from the said shoulder across the inside of the said door elements parallel to the first mentioned arm, and fastening means passed through said latter arm to secure all of the elements of the door together and to said arm, substantially as set forth.

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

NATHAN GUDEMAN.

Witnesses:

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FRANK GARVIER.