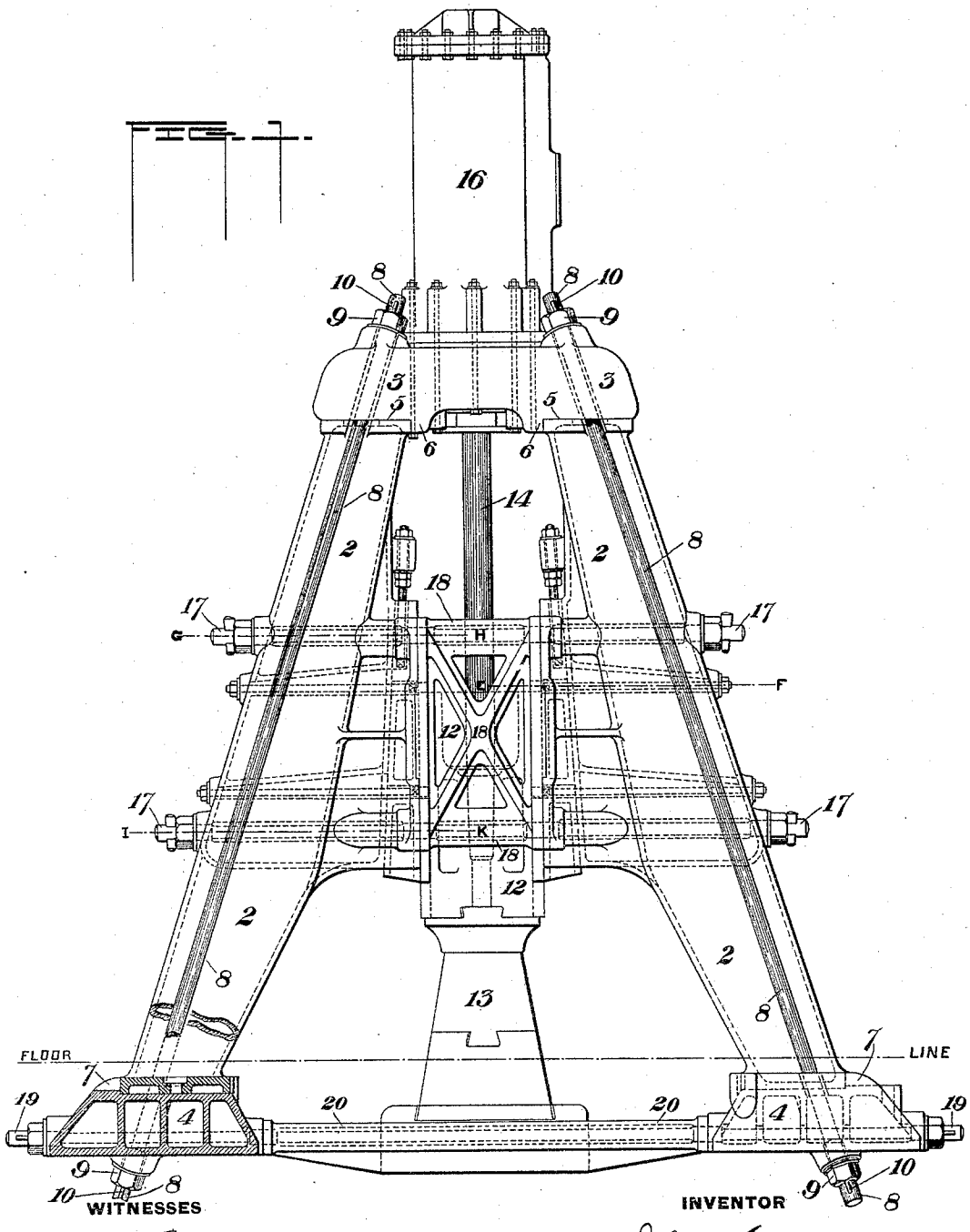
(No Model.) 3 Sheets—Sheet 1.

J. KENNEDY.

HAMMER FRAME.

No. 442,898. Patented Dec. 16, 1890.



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Julian Kennedy

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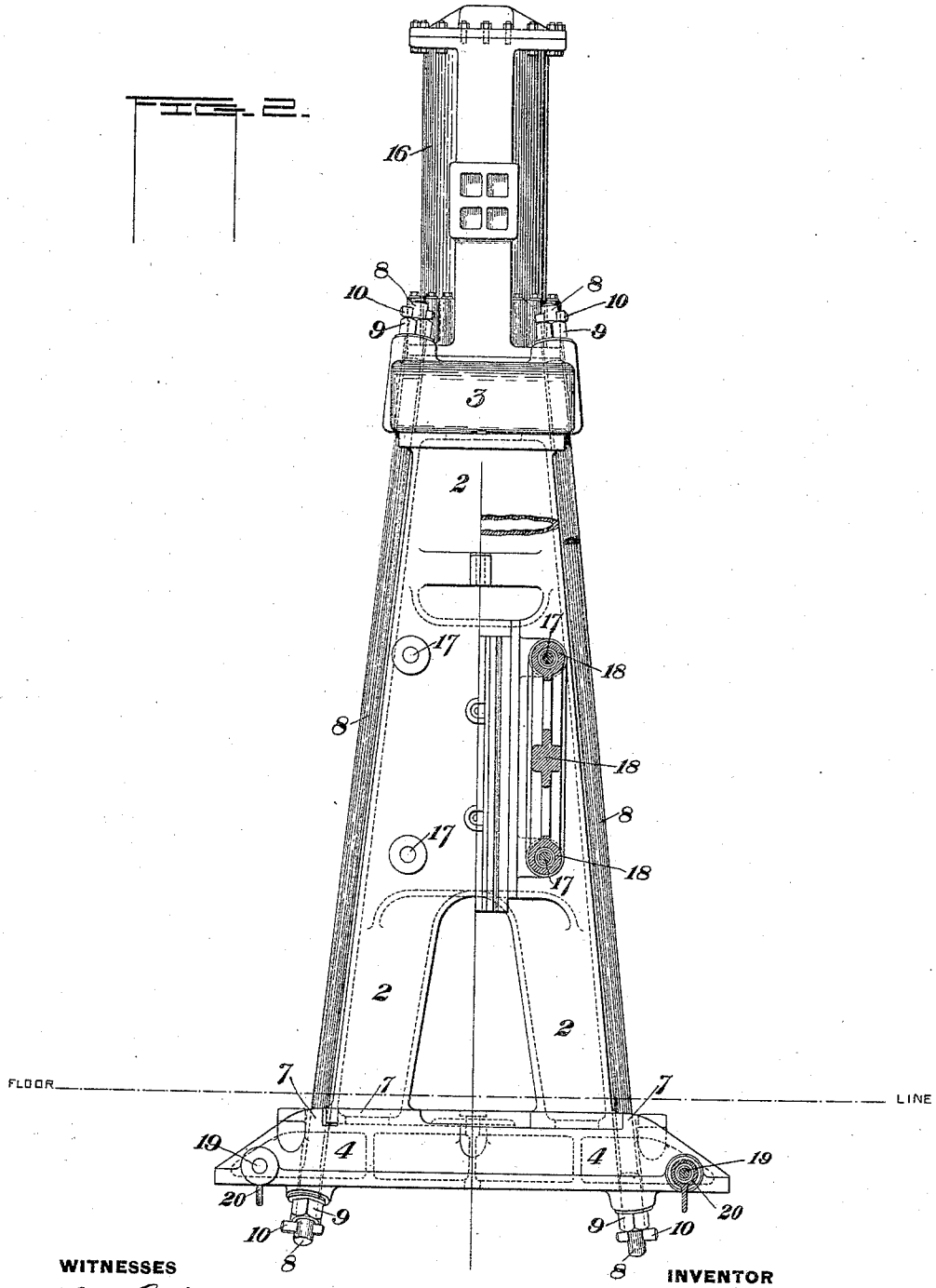
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FIG. 2.



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FIG. 3.

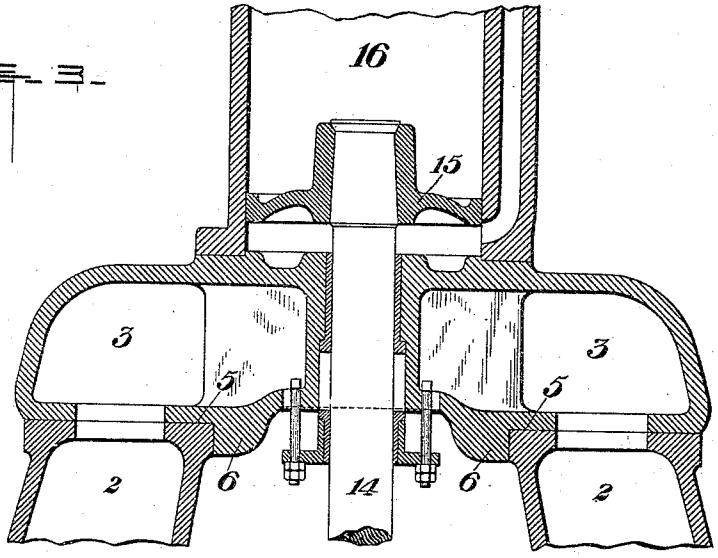


FIG. 5.

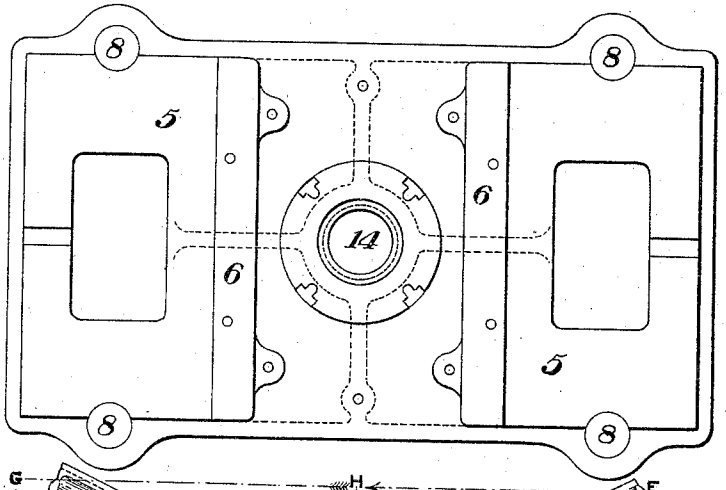
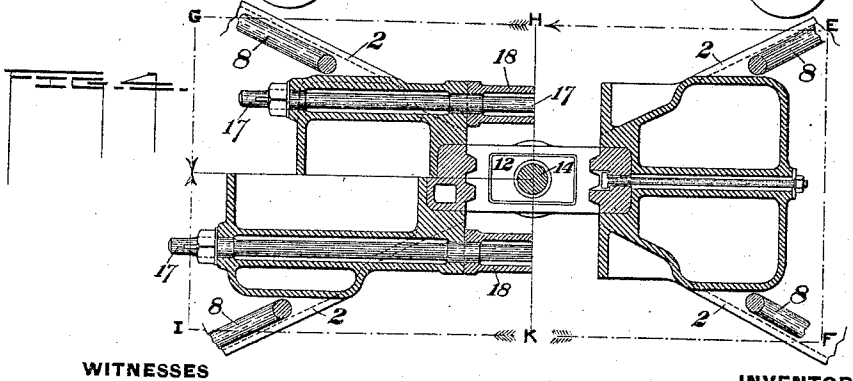


FIG. 4.



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UNITED STATES PATENT OFFICE.

JULIAN KENNEDY, OF LATROBE, PENNSYLVANIA.

HAMMER-FRAME.

SPECIFICATION forming part of Letters Patent No. 442,898, dated December 16, 1890.

Application filed October 31, 1889. Serial No. 328,804. (No model.)

To all whom it may concern:

Be it known that I, JULIAN KENNEDY, of Latrobe, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Hammer-Frames, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my improved hammer. Fig. 2 is a side elevation of the hammer, shown partly in section. Fig. 3 is a vertical cross-sectional view of the upper portion of the hammer-frame. Fig. 4 is a compound cross-sectional view, the section being on the lines E F, G H, and I K of Fig. 1. Fig. 5 is a bottom plan view of the entablature.

Like symbols of reference indicate like parts in each figure.

My invention relates particularly to an improvement in the construction of the frames of steam-hammers, and is designed to increase the strength and rigidity of such frames, and thereby to enable the use of very heavy hammers without that danger of breaking and loosening of the parts to which hammer-frames of the kind heretofore commonly used have been subject.

The hammer-frame consists of two frames or legs 2 2, which are set in inclined positions relatively to each other, as shown in Fig. 1, and are connected at the top by an entablature 3, and at the base there are base-plates 4, which are connected by bolts 19 and interposed separators 20. Each of these legs consists, preferably, of a single hollow casting, which for economy of material may be forked or divided at the lower portion, as shown in Fig. 3, blocks or separators 11 being interposed in the forked parts of the leg for the purpose of bracing them. The entablature is also a cast-metal piece, the shape of which in vertical section is shown in Fig. 3, and a bottom plan view of which is shown in Fig. 5. On its under side the entablature is provided with sockets or recesses 5, which are made of proper size and shape to receive the upper ends of the legs of the hammer-frame. At the inner sides of these sockets or recesses are shoulders 6, against which the inner edges of the legs have a bearing; but their outer sides may be open, as shown in Figs. 1 and 3. In like manner the bottom ends of the legs are fitted in suitable recesses formed in the base-plates 4, (see Figs. 1 and 2,) and the outer edges of the legs have a bearing against shoulders 7 at the outer sides of said recesses, as shown at the right-hand portion of Fig. 1.

In order to hold the legs, the base-plate, and the entablature firmly together, so that they shall constitute an integral and substantial hammer-frame, I do not follow the former practice of merely bolting the entablature and base-plates separately to the legs; but I employ long bolts or tie-rods, which connect the entablature to the base-plates, and which, being in a state of tension, draw these parts together upon the ends of the interposed legs.

In the drawings, 8 8 represent these bolts, of which there are preferably four in number. They extend through the entablature and through the base-plates, but not necessarily through the legs, being preferably arranged outside the latter, as shown in the drawings.

In connecting the parts of the hammer-frame together I first place the bolts in proper position, and apply heat to them by the medium of a steam-jet or otherwise, so as to cause them to elongate. Owing to the exposed situation of the bolts, this may be easily done. I then tighten the nuts 9 at the ends of the bolts, and lock them in position by means of suitable keys 10. The bolts are preferably made of steel, so as to be of great strength and of considerable limits of elasticity, and on cooling they contract in length, so as to draw the entablature, base-plates, and legs together with rigidity and firmness, the outer edges of the bases of the legs and the inner edges of the tops thereof bearing against the shoulders in the respective recesses, which have been already described. By reason of the inclined positions of the legs and the elastic tension of the bolts all tendency of the legs to move inwardly at the bottom in their bearings at the base is prevented. The tying together of the parts of the hammer-frame, which is accomplished in this manner, is of such nature that they are not apt to be jarred loose, the concussion of the heavy blows of the hammer is taken up by the elastic bolts, the noise and shaking produced by the strokes

are lessened, and the necessity for constant readjustment of connecting bolts and nuts is obviated.

Another very material advantage derived from the use of the bolts 8 is that because the legs of the hammer-frame are usually made of cast-iron they are capable of standing much greater strain when in the state of compression to which they are subjected by the bolts than if such compression were absent, as in the hammer-frames heretofore commonly employed.

I shall now describe in general the construction and arrangement of the other parts of the hammer and its frame.

12 is the hammer stock or plunger, which is adapted to reciprocate and to strike upon metal placed on the anvil 13. This plunger reciprocates between vertical guides formed by inwardly-projecting portions of the legs, as shown in Fig. 4, and is connected to a piston-rod 14, which extends through the entablature and is attached to a piston 15 in a steam-cylinder 16, Fig. 3, which, if desired, may be cast in one piece with the entablature.

For the purpose of connecting and bracing the legs of the hammer-frame I employ horizontal cross-bolts 17 and separator-frames 18. I also prefer to form the inner outlines of the legs as shown in Fig. 1—that is to say, at the lower portions thereof, near to the hammer, the outlines are made more divergent than at the upper portion. This imparts an arched form to the lower part of the frame and materially increases its strength.

The advantages of my improvement have been generally indicated above, and will be appreciated by those skilled in the art.

I claim—

1. As an improvement in frames for hammers, the combination of the legs, an entablature and base, and bolts connecting the entablature with the base and drawing these parts together, substantially as and for the purposes described.

2. As an improvement in frames for hammers, the combination of the legs, an entablature and base, and exposed bolts connecting the entablature with the base and drawing these parts together, substantially as and for the purposes described.

3. As an improvement in frames for hammers, the combination of the legs, an entablature and base, bolts connecting the entablature with the base and drawing these parts together, and shoulders on the entablature and base, against which the inner edges at the top of the legs and the outer edges at the bottom of the legs respectively bear, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 29th day of October, A. D. 1889.

JULIAN KENNEDY.

Witnesses:

W. B. CORWIN,

THOMAS W. BAKEWELL.